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California's Health

Vol. 14, No. 10 · Published twice monthly · November 15, 1956

BIENNIAL REPORT EDITION

JULY 1, 1954—JUNE 30, 1956

THE STATE DEPARTMENT OF PUBLIC HEALTH REPORTS TO CALIFORNIANS . . .

In this special issue of *California's Health* the State Department of Public Health again reports to the people of California. This is a biennial report, covering the fiscal years of July 1, 1954-June 30, 1955 and July 1, 1955-June 30, 1956.

Since this department was established 86 years ago, it has published 46 reports; this is the 47th. Like this report, many have been biennial, some annual, and one triennial.

The 45th and 46th reports published in 1953 and 1954, were also special issues of *California's Health.* In this way more citizens receive copies than was possible with the longer type of report. Detailed statistical supplements are published separately.

CONTENTS

	Page
Letter of Transmittal	75
Members, State Board of Public Health	76
Major Public Health Problems in California . . . An Approach to Their Solution (For specific problem areas, consult subject index)	77-113
The Budget	114
Departmental Organizational Chart	115
Departmental Functions	116
Subject Index	120

THE COVER PHOTOGRAPH: *This view of the department's new headquarters building was taken from atop Warren Hall, home of the University of California's School of Public Health. Both buildings were dedicated in 1955. In the background lies San Francisco Bay, with Mount Tamalpais barely visible on the left. To the right, but not visible in the distance, is the new bridge link between Richmond and San Rafael. Out of the picture to the left lies San Francisco and the Golden Gate.*

OFFICE OF THE DIRECTOR

STATE OF CALIFORNIA
Department of Public Health
2151 BERKELEY WAY
BERKELEY 4, CALIFORNIA

November 15, 1956

The Honorable Goodwin J. Knight
Governor of California
State Capitol
Sacramento, California

Dear Governor Knight:

It is with pleasure and some degree of pride that I transmit to you the report of the State Department of Public Health covering the biennium, July 1, 1954-June 30, 1956.

Our birth rate remains high, although lower than the national average. Our death rate continues to be lower than the rest of the Nation; that for 1954 was the lowest in our history, and the 1955 rate was only slightly higher.

Outstanding public health achievements in this biennium were:

1. The Salk vaccine was tested and proved effective in preventing a large proportion of paralytic polio.
2. A way was found to prevent blindness in premature babies.
3. A statewide health survey was completed--the first undertaken by any state.
4. Epidemics were prevented following the disastrous floods of December, 1955.
5. Hospital and health center construction increased.
6. An organized approach was made to the air pollution problem.

Population pressures continued to increase all of our public health problems.

This report describes the public health problems considered important in California today, together with a short summary of the efforts being made toward their solution.

Very sincerely yours,

Malcolm H. Merrill

Malcolm H. Merrill, M.D., M.P.H.
State Director of Public Health

MHM:kk

CALIFORNIA'S HEALTH BIENNIAL REPORT EDITION

Goodwin J. Knight, *Governor*

Malcolm H. Merrill, M.D., M.P.H., *State Director of Public Health*

STATE BOARD OF PUBLIC HEALTH

July 1, 1954-June 30, 1955

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July 1, 1955-June 30, 1956

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MRS. P. D. BEVIL, *Vice President*
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ELMER BELT, M.D.
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(Appointed by the Governor to fill the vacancy caused by Dr. Rinehart's death.)
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CALIFORNIA'S PUBLIC HEALTH PROBLEMS HAVE ALWAYS BEEN MAGNIFIED AND MULTIPLIED BY SHEER POPULATION GROWTH . . .

Since the Gold Rush days, every period of national crisis has sent a huge wave of people into California, and most of them have stayed. Between crises, the rate of growth has remained high. Natural increase by births has never been the major factor in California's population growth; it has been in-migration. Since 1900 the number of California residents has increased more than seven-fold, while the number in the rest of the United States has barely doubled. In fact, in every decade since 1900 California's population has grown almost three times as fast as that of the country as a whole.

The 1950 census showed what had been surmised between censuses—that California had grown to be second only to New York in population. California is now the largest single registration area for births, deaths and marriages, since New York City is a separate registration area from the rest of New York State.

By 1956 California had 13,600,000 people. This is a 94 percent increase since 1940 when the census counted 7,000,000 people in the State—a gain of over 400,000 a year. If this continues, California's population will reach 15,000,000 before 1960.

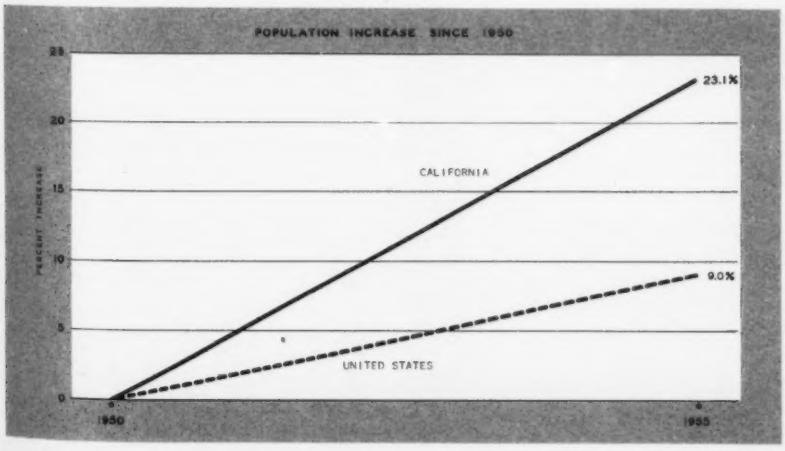
Such growth taxes all medical and public health facilities, services, and personnel, and requires vastly accelerated increases in all of them just to keep pace with the need. Trying to prepare for the anticipated future needs is an even greater problem.

The way the population is distributed in the State presents problems in providing medical and public health services. Of the 58 counties in California, the lowest in population has only a few hundred people, while the highest has over five million. Some of these sparsely populated counties are the recreational playgrounds for many thousands of Californians. This presents great sanitation problems in the areas that can least afford to maintain public health services.

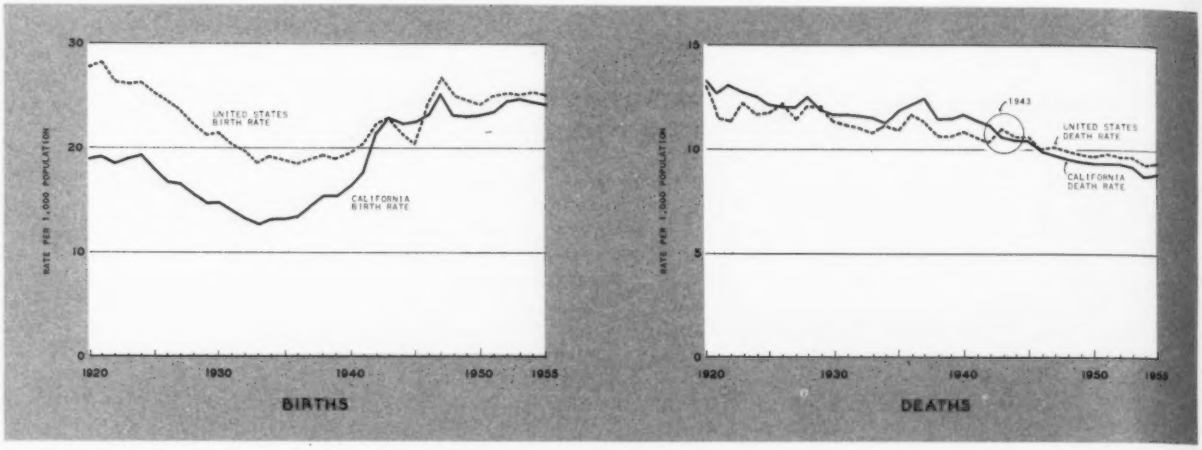
California's people concentrate along the coast and cluster in a few metropolitan areas. Almost three-quarters of the people live in the Los Angeles, San Francisco and San Diego areas. The most important change in the distribution of our population has come about during the last few decades in these metropolitan areas. This is the "urban fringe" development, which creates special problems in the provision of public health services. Because of the ease of movement by automobile the proportion of people living in the central city is decreasing. People tend to work in the central city and commute from their homes in the suburbs. Not only is there a movement of people from homes in the city to homes in the surrounding areas, but there has been a steady movement of people from the rural areas and small towns to the suburbs in order to work in the cities.

This means service for the protection of public health must be maintained for all the workers in the cities, while new facilities and services must be built up at a rapid rate in the "urban fringe." The problem is further magnified because much of this "urban fringe" is unincorporated.

With the increase in population has come an increase in industry. Together they have not only increased California's health problems but changed their nature and intensified them. It behooves Californians to do some very thoughtful planning for their solution. The State Department of Public Health carries the responsibility for leadership in helping Californians to protect and improve their health, as individuals by helping them to know what they need to do for themselves, and as members of their communities by helping them to know what they need to do together by cooperative effort, backed by the authority vested in their state and local official agencies.



CALIFORNIA'S BIRTH RATE REMAINS HIGH: THE DEATH RATE IS THE LOWEST ON RECORD . . .



California's birth rate is staying high, although the 1955 rate is slightly below that of 1954, and below that of the United States as a whole. The death rate for 1954 was the lowest in California's history; the rate for 1955 was only slightly higher. Since 1943 California's death rate has been lower than that of the country as a whole.

The birth rate for 1954 was 24.3 for every thousand estimated population; and for 1955 was 24.0. The death rate for 1954 was 8.7 per thousand, and 8.8 for 1955.

More than 313,000 babies were born in California in 1955.

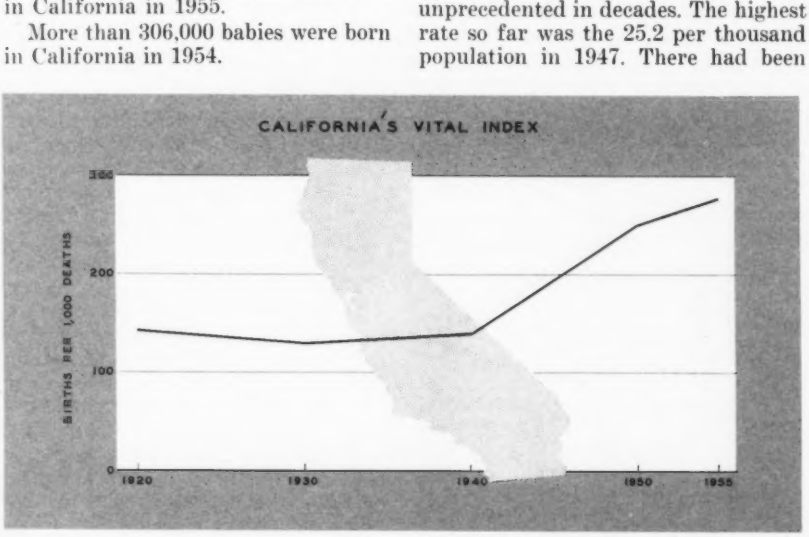
More than 306,000 babies were born in California in 1954.

There were almost three times as many births as deaths

Although the excess of births over deaths has not been the main factor in the growth of California's population up to the present time, the high birth rate may make this factor more important in the future.

For many years California's birth rate was lower than the rest of the country. In the mid-thirties the birth rate started upward. With World War II came a sudden rise in marriages and births; the postwar period brought an upsurge in the birth rate, unprecedented in decades. The highest rate so far was the 25.2 per thousand population in 1947. There had been a trend toward decrease in the relative numbers of children in California's population, but this was suddenly reversed during the 1940's. During that time, children under five years of age increased 142 percent, while the general population increased 53 percent. The 1950 census showed that children under five made up more than one-tenth of our State's population. No census since 1880 had shown so high a proportion of young children.

At first this great increase in the birth rate was thought to be due to war conditions, but as the years have gone by the birth rate has stayed high, and other elements enter the picture. No doubt the high economic level of postwar years has been an important factor. Californians are marrying younger than ever before and are having larger families.



CALIFORNIANS ARE MARRYING YOUNGER—AND HAVING LARGER FAMILIES

Teen-age marriages are increasing. In only 6 percent of the marriages in 1949 were the bride and groom under 20 years of age; by 1955 this was true of almost 11 percent of the marriages. During that same period the proportion of brides under 20 increased from 26 percent to 35 percent.

California is following the national trend to "medium size" families of

three or four children, reversing the longtime trend toward one and two child families.

Since the peak in 1946-47, the marriage rate has gone down, but this is only a reflection of the smaller proportion left unmarried in the total population. In 1954, the percentage of adults who were married reached an all-time high in California and in the rest of the Nation. According to the California Health Survey, 74 percent of the males and 68 percent of the females over 15 years of age were married.

The other side of the picture is that California has twice as many divorced persons per marriage as the rest of the United States. In 1954 and 1955 California recorded more than one divorce for every two marriages. Here is evidence of social illness. It is an area which needs careful study to find out the causes and to determine whether there are preventive measures which can be taken. What are the social and mental health implications of a high divorce rate for Californians?

CHILDBIRTH IS SAFER—

A quarter of a century ago California's maternal death rate was 5.2 per thousand live births. In 1954 this rate was only 0.3 and in 1955 it was 0.4. (The U. S. rate for both years was 0.5.) This lowered maternal death rate has resulted in a dramatic savings of mothers' lives. Last year in California there were 117 maternal deaths, but if the 1930 rate had still prevailed no less than 1,628 California mothers would have lost their lives from complications of pregnancy.

Now that the number of maternal deaths is small, individual cases can be studied, and maternity risk can possibly be decreased even further. Race and age are factors. What are other factors?

AND MORE BABIES ARE LIVING THROUGH THE FIRST YEAR OF LIFE—

The infant death rate is now the lowest in the history of the State—more babies survive the first year of life than ever before. In the last 20 years the greatest reduction in infant mortality has been in the one-through eleven-month period, so that now almost three-fourths of all infant deaths are in the less-than-one-month-old (neonatal) group.

The California infant mortality rate for 1954 was 23.7 per thousand live births and 23.6 for 1955. These are well below the national rates of 26.8 and 26.5.

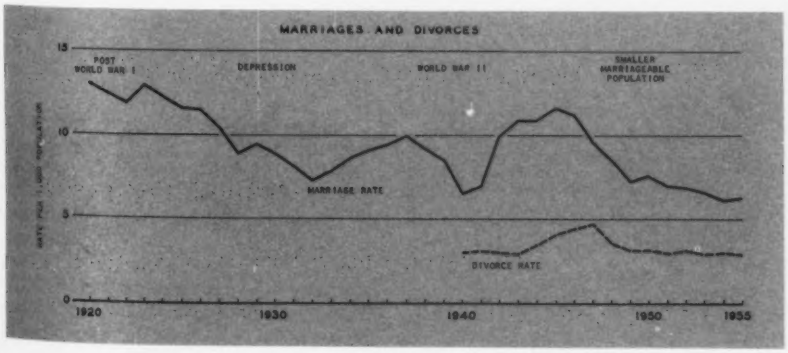
The Department is conducting studies of the changing child health problems and services in California. The major problems being studied are prematurity, congenital malformations, accidents, and dissocial behavior. The study of child health services started with a special project evaluating child health conferences as conducted by local California health departments. This project is being financed by funds from the Children's Bureau.

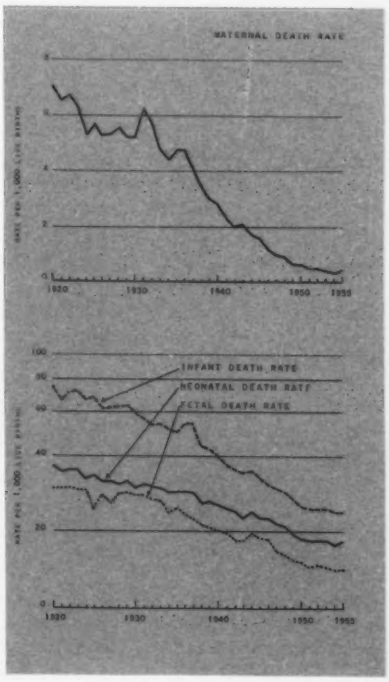
The purpose of the child health services study is to find out whether the conferences are aiming at the children and families needing them most, whether their focus is on problems important today, whether they are effective in attaining their avowed objectives, and whether they are coordinated with other health services for children and families.

The first step has been preparation for an interview survey, similar to the California Health Survey, in which 2,000 families with young children will be interviewed by September 1956. The questionnaire has been designed to obtain basic data against which to assess the present objectives of child health conferences being held in California.

A long-term study of the care of mentally retarded children in their own homes was begun in Los Angeles in 1954 under funds from the Children's Bureau, with joint planning and consultation by this Department and by the Department of Mental Hygiene. This study is still in progress.

The continuing rise in birth rate has arrested, at least temporarily, the *relative* aging of our population, which is of so much concern now in public health. In this new-found concern for older people, it must not be forgotten that the future lies with our children.

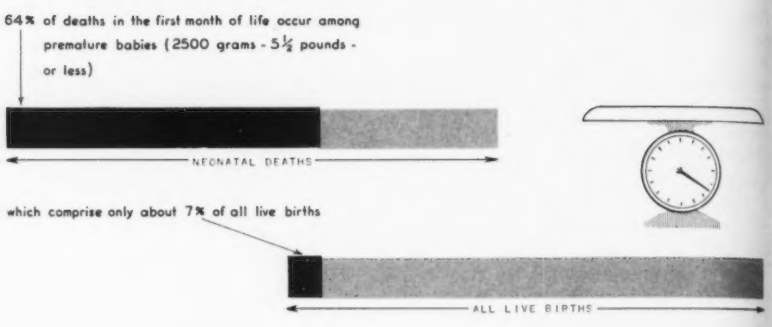




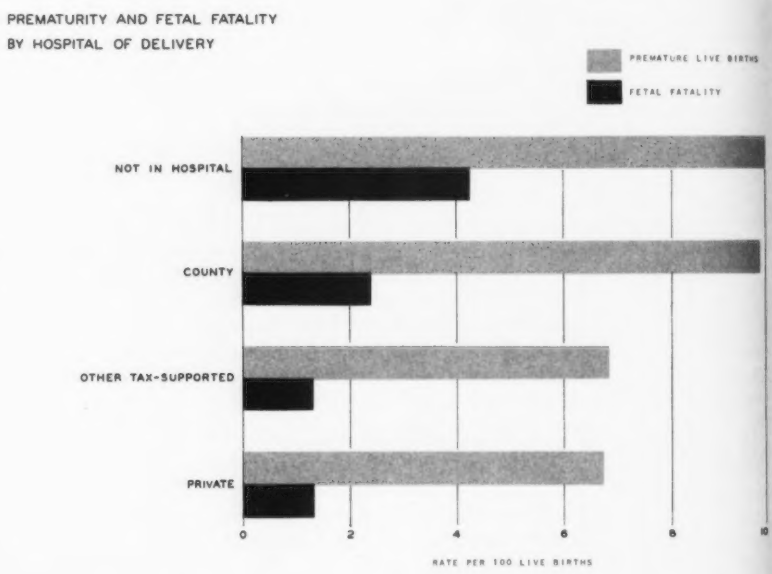
PREMATURITY IS THE GREATEST THREAT TO THE LIVES OF BABIES UNDER ONE YEAR OF AGE . . .

One in every 14 live births in California is premature (babies weighing five and one-half pounds or less).

But in this small percentage of births occur almost two-thirds of the deaths in the first month of life.


64% of deaths in the first month of life occur among premature babies (2500 grams - 5½ pounds - or less)
NEONATAL DEATHS
which comprise only about 7% of all live births
ALL LIVE BIRTHS

Mothers who have the highest incidence of prematurity are those not delivered in hospitals or delivered in county hospitals. These are the mothers who have the least amount of prenatal care.

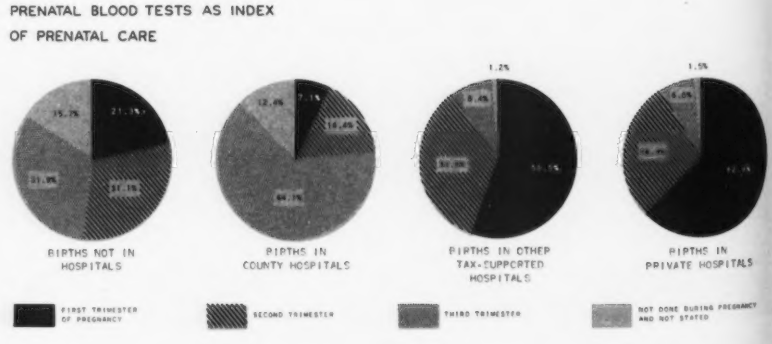


Adequate prenatal care is considered the best known way to prevent premature births . . .

There is still much to be learned about the causes of premature births, but certain conditions known to be often associated with premature birth can be controlled by appropriate care during the prenatal period.

Several local studies are in progress for this purpose, notably in Alameda, Los Angeles and San Bernardino Counties. A state-wide survey was begun in 1955 of the quantity, quality and eligibility requirements of prenatal clinics operated by county hospitals and local health departments.

The results will soon be available to interested groups in the State, so that they can work together to improve prenatal care.


PRENATAL BLOOD TESTS AS INDEX
OF PRENATAL CARE
BIRTHS NOT IN HOSPITALS
BIRTHS IN COUNTY HOSPITALS
BIRTHS IN OTHER TAX-SUPPORTED HOSPITALS
BIRTHS IN PRIVATE HOSPITALS
FIRST TRIMESTER OF PREGNANCY
SECOND TRIMESTER
THIRD TRIMESTER
NOT DONE DURING PREGNANCY AND NOT STATED

BLINDNESS IN PREMATURE BABIES CAN NOW BE ALMOST ELIMINATED . . .

A distressing outcome of the life-saving care of premature babies has been that the number of cases of blindness has increased among them. The use of oxygen in incubators saved the lives of many premature babies, but using it in high concentrations increased the incidence of a condition called retrolental fibroplasia, which usually results in blindness.

The discovery of the relationship between oxygen therapy and retrolental fibroplasia is a very recent development of great human and economic significance. This relationship was not proved until 1954.

The Department then took vigorous action in disseminating this vital information throughout the state. The Department's advisory committee on retrolental fibroplasia drew up a statement of recommended policies on oxygen administration to premature infants and urged their immediate adoption by all hospitals caring for the newborn. In July, 1955, over 30,000 copies of this recommendation were sent throughout California to all local health officers, all licensed physicians, all hospital administrators responsible for maternity services, all directors of nursing in those institutions, all ambulance companies and to others who might be concerned.

Departmental staff have since been following up these recommendations by visits to hospitals, by stressing their importance in all contacts with local health departments, and by testing many of the new oxygen control devices that have come on the market.

This is a striking example of the value of epidemiologic research resulting in a scientific finding of enormous significance. And it is a heartening example of the way professional groups can work together in applying scientific findings to bring untold human and economic benefits. It is a reminder of another great public health victory in the field of prevention of blindness, that of the virtual wiping-out of ophthalmia neonatorum, a gonococcal infection of the eyes acquired during birth, which only 20 years ago caused about 11 percent of all blindness in California.

BLINDNESS IS COMMON AMONG OUR OLDER PEOPLE . . .

Blindness from infectious diseases has markedly decreased, but blindness is increasing from chronic conditions, which are more prevalent in our older people. Diabetes, for example, is an important cause of blindness.

The California Health Survey revealed that out of every 1,000 Californians 65 or older, more than 14 are blind in both eyes, while the population as a whole shows less than two totally blind persons per 1,000. In this old age group, more than 60 out of every thousand are blind in one eye or have other impairing diseases of the eye—more than five times the number in the general population.

Aside from the obvious humanitarian motive, the economic motive is strong for prevention of blindness. Every year in California we pay out more than $12,000,000 in state funds directly to needy blind persons. The economic loss in productivity cannot be estimated. The Department is actively investigating the practicability of a public health program for the prevention of blindness.

In August, 1954, the W. K. Kellogg Foundation granted the Department sufficient funds for a small staff to work for three years on a Prevention of Blindness Project. This staff is studying the opportunities local health departments now have for determining the extent of blindness in their areas, and is exploring the possibilities for practical community programs for the prevention of blindness.

The California Health Survey showed that there are between 22,000-24,000 blind Californians. Something about the distribution in the population is known, but information on the amount of *potential* blindness is entirely lacking. The Prevention of Blindness Project is gaining information about the *relative importance* of the various causes of blindness. This is a necessity for planning preventive programs.

From the information now available it is known that a good share of blindness comes from two conditions, which if detected early enough can prevent resulting blindness. These are glaucoma, common in older people, and *amblyopia ex anopsia*, more common in young people. Glaucoma is a condition of increased pressure within the eye. Almost 14 percent of all adult blindness in California has resulted from glaucoma. (Cataract is first, with about 26 percent.) Blindness from glaucoma can be prevented if the condition is detected early and treatment begun. *Amblyopia ex anopsia* is a condition of dimness of vision leading to blindness. Among other causes of blindness are those associated with the chronic diseases of our older age groups, such as diabetes, cancer, and hypertension. Community programs might well be based on any or all of these known causes.

THE OLDER PEOPLE OF CALIFORNIA PRESENT SERIOUS HEALTH PROBLEMS . . .

Four and a half million young people (under 20) are the largest group in the State with special needs and the largest dependent group, but the increase in the numbers of older people (over 65) presents real health problems. One out of every 11 Californians is 65 or over. Many of them are dependent. Health problems are intensified in this group.

The decrease in infant mortality, the virtual conquest of many infectious diseases, and improved general health have lengthened the life span, so that more people are living now

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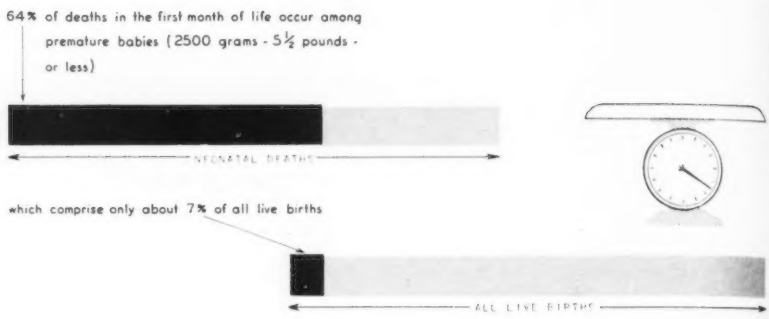
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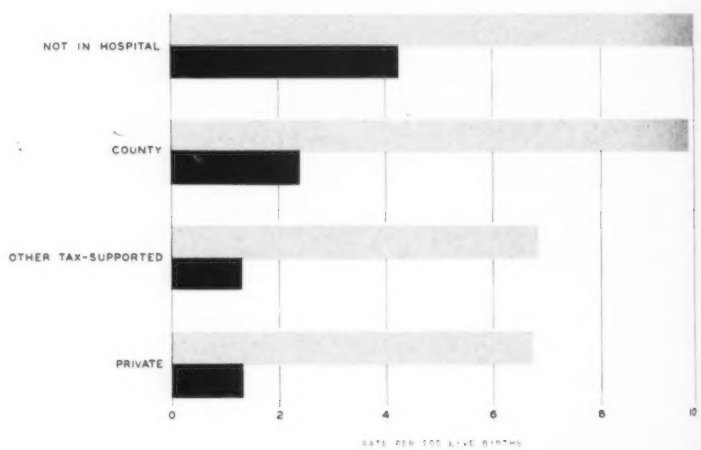
PREMATURITY AND FETAL FATALITY
BY HOSPITAL OF DELIVERY



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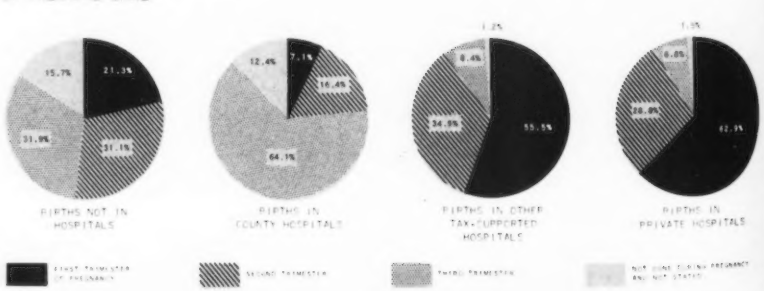

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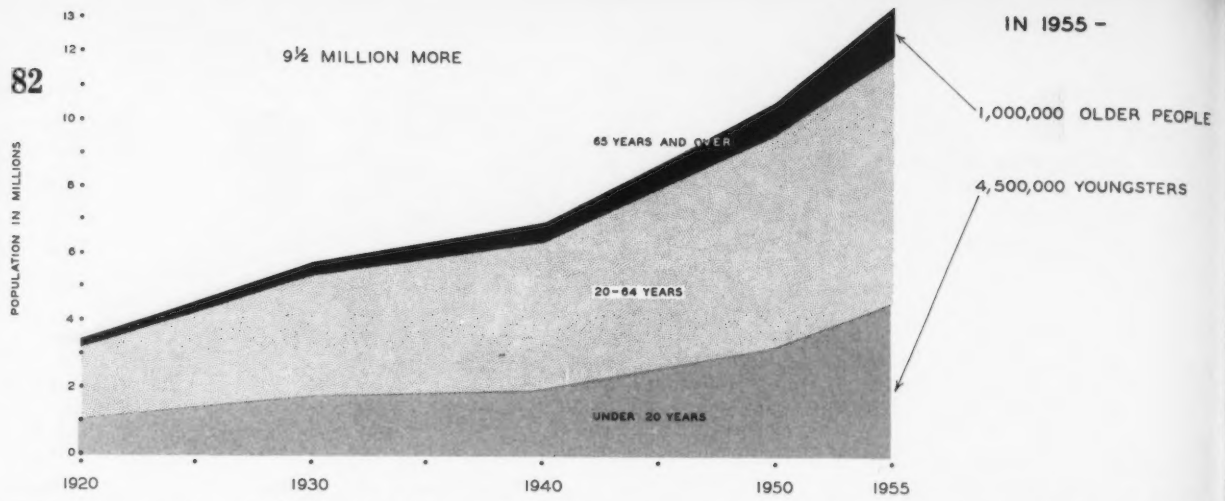


to the age when chronic disease takes its toll.

In the past 50 years while the general population has increased sevenfold, the number of those over 45 has increased nearly tenfold and those 65 or older, almost twelve times.

As a result, for several years the diseases characteristic of middle age and old age have been the main causes of disability and death in the total population. This trend has pronounced significance in public health planning. Prevention and control of chronic disease and problems of aging will assume more and more importance in future public health work.

Health problems of aging

Old age in itself is not a disease, but the increase in the number of older people has forced our attention to their health problems. Aging people are more subject to cancer, cardiovascular diseases, diseases of the nervous system and sense organs and the internal glandular system.

These and other conditions often lead to frequent and prolonged periods of disability. The California Health Survey (completed in May, 1955) shows that, on the average, each Californian 65 years old or older was disabled to some degree by illness or accident for 65 days a year—more than two months out of the year! On the average, 27 of these days were spent in bed.

The Survey showed that the leading cause of disability for this age group (outside institutions) was cardiovascular disease. Diseases affecting the nervous and muscular systems and the bone structures, aside from arthritis and rheumatism, was the second greatest cause of disability, with arthritis and rheumatism third.

The leading causes of death among people in California 65 years or older, in order of importance, are:

1 cardiovascular-renal diseases
2 cancer
3 pneumonia and influenza
4 accidents (most commonly, falls)

The California Health Survey covered only people outside institutions, but large numbers of our older people are in institutions of some sort. To an alarming extent many, whose mental condition does not warrant that type of care, are in mental hospitals, where they occupy beds needed for those who do need such care.

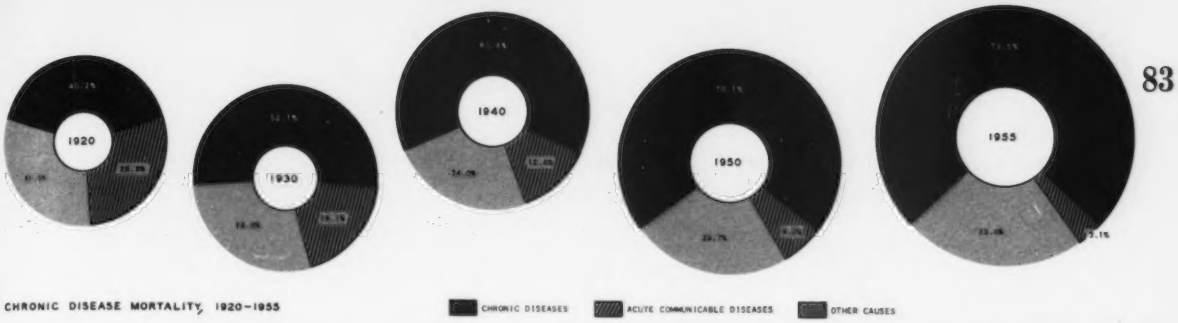
At present there is not enough organized community effort directed toward improving the health of aging people. Community responsibility has been largely limited to providing institutional care for those suffering the most severe forms of disease. Certainly, this is a great need that must be met. The Department has been working with other State and local agencies to stimulate the building of chronic disease hospitals and rehabilitation centers, and to improve institutional care and include rehabilitation, but this is not enough. Effort must be directed toward preventing individual breakdown from disease and helping maintain those who are well.

It is defeatism to think that the disease problems of aging are inevitable. These problems must be attacked in the same way as the communicable diseases have been. Public health has developed specialized personnel and technique which can be used in attacking the non-communicable diseases of later life. The Department is already using them to help acquire new knowledge in this field. Epidemiologic investigation of cancer and heart disease is being carried on and stimulated by the Department. Early detection programs are being conducted. Many local programs are being aligned to meet the needs of this older segment of the population, to prevent disease among them and to extend and maintain healthful life, making the longer life worth living.

CHRONIC DISEASES CAUSE THE MAJORITY OF ALL DEATHS IN CALIFORNIA . . .

Early in the century, chronic diseases accounted for about a third of all deaths in California. Major communicable diseases combined accounted for about the same number of deaths. Now chronic diseases account for almost three-fourths of all deaths and communicable diseases less than one-twentieth. The rise in the proportion of deaths from chronic disease reflects both the steady aging of the population and the measure of control which has been achieved over the communicable diseases.

However, certain diseases, such as lung cancer and coronary heart disease, are increasing apart from the age change in the population, while



stomach cancer and rheumatic heart disease appear to be declining.

Deaths from chronic disease are an inadequate measure of the amount of chronic disease. The California Health Survey has provided definite information as to the amount of sickness and disability from chronic conditions. During the survey period (May, 1954 through April, 1955) 156 persons out of every 1,000 had at least one day of disability because of a chronic condition. Of all the days of disability experienced during this period, 70 percent were attributed to conditions which were chronic.

There is much talk now about chronic disease as a "new" field of public health endeavor. Actually the State and local health departments in California have been working on the prevention of chronic disease for a long time without calling it that. Certainly the long-standing programs of tuberculosis and venereal disease control alone have prevented much chronic illness.

California established such a unit in 1946. Since then the Department has been active in the development and evaluation of chronic disease control services, and in epidemiologic investigation of chronic diseases.

In 1955, with support from the Rockefeller Foundation, the Department was able to establish a Chronic Disease Epidemiology Center to consolidate and advance the epidemiologic investigations. The Foundation provided funds for employing a group of workers from the fields of medicine, social science, and statistics, who have the responsibility of developing chronic disease epidemiologic studies over the next several years.

The Department carried on a program of in-service training in chronic disease control for staff consultants in two-day sessions in October and November of 1954, and February and May of 1955. This followed shortly after the conclusion of a detailed survey begun earlier in 1954 of chronic disease control activities in local California health departments. This was made by the Department at the request of the Conference of Local Health Officers.

The survey showed that more than a dozen local health departments, in cooperation with medical societies and other community groups, had undertaken effective programs for the early detection of diabetes and other chronic diseases. In general, local health department services showed a significant recognition of the importance of chronic disease control.

Chronic illness is simply long-term illness, and any serious illness that lasts long enough can overwhelm the personal financial resources of most families, even destroy the family as a social unit. So chronic disease has thrown an ever-increasing burden on governmental health and welfare agencies. Prevention in every way possible is necessary. Search for means of primary prevention—finding out the causes—must go on intensively, and the means of secondary prevention—keeping conditions, already known, from worsening—must be applied as widely as possible.

The current emphasis on chronic disease control is rightly placed.

OBESITY IS A PUBLIC HEALTH PROBLEM . . .

The prevalence of obesity is high in the United States. It is estimated that one-fifth of the adult population over 30 is overweight. If this ratio holds true for California, it means that more than 1,300,000 Californians are overweight.

Evidence from life insurance statistics and other studies clearly shows that obesity is an important factor in disease and premature death. Death rates from all causes are above normal for overweight persons at every age. Death rates increase with the degree of overweight for both men and women. Obesity is closely associated with excessive mortality from several of the chronic diseases—hypertension, heart disease, nephritis, cerebral hemorrhage and diabetes. Even a little overweight—5 to 14 percent above normal—produces a substantially increased mortality rate. This is especially true for cardio-vascular-renal diseases and diabetes. Pregnancy and surgery are complicated by obesity.

Perhaps less apparent, but no less important, is the psychological handicap of excess weight. Until all factors—physiological, psychological, hereditary and environmental—which hinder successful treatment of obesity are understood, prevention is of primary importance. Obesity need not be inevitable. Prevention of overweight offers a positive approach to the maintenance of health and to the prevention of some of the major diseases of middle and old age.

Obesity as a public health problem is receiving increasing attention in California. Assistance was provided by the Department in a four-year study at Herrick Memorial Hospital, Berkeley, the chief aim of which was to investigate the use of a group approach to the problem of losing weight. Several local health departments have developed materials on weight control. In San Mateo County, the county health department gave material assistance to the important study recently made of the nutritional status of the aging, giving attention to the problem of overweight.

THE CALIFORNIA HEALTH SURVEY HAS REVEALED NEW INFORMATION ABOUT THE HEALTH OF CALIFORNIANS . . .

At the time of this report period, the California State Department of Public Health is in the best position it has ever been for judging the actual condition of the health of Californians, assessing their health needs, and planning with them for the bettering of those conditions and the meeting of those needs. The reason for this is the California Health Survey, completed May 15, 1955.

Until this Survey, the Department had to rely on information contained in the birth and death records, in reports (known to be incomplete) of those diseases physicians are required to report, and in fragments of information from hospital records and insurance programs. There was no measure of the amount of general illness in the total population, either chronic or acute, major or minor, unless it resulted in death or was caused by a reportable disease.

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Sound planning requires information on how diseases rank in importance as causes of illness, not just as causes of death. There is a need to identify population groups in which illness is concentrated and to try to forecast future trends of illness. The California Health Survey has provided much of this information and, even more importantly, has provided a practical method for keeping this information up-to-date.

Because the Survey included information about the age, sex, occupation, income level and other characteristics of those who were ill, it will be possible for studies to be made about their relationship to certain types of disease and throw light on the causes of some of the conditions. Knowing which parts of the population carry the greatest risk for certain diseases will make it possible to concentrate preventive efforts in the right places.

The California Health Survey is the result of five years of planning and preliminary work by the State Department of Public Health. In 1947 the Legislature directed the Department to investigate chronic disease. The specific concern with obtaining information about illness in the general population grew out of this directive.

As the Department examined this problem, it became apparent that information about the occurrence of all types of illness in relation to characteristics of the State's residents would serve many public health interests, not just chronic disease control.

In 1950, with a research grant from the U. S. Public Health Service, the Department started a project to evaluate possible methods of getting current, general illness data and then to develop practical methods for obtaining, on a statewide basis, the kind of data needed for the most effective planning of public health programs. The Department was granted funds for this project because it was seen that a plan for establishing a current morbidity service would be applicable in other states and for the Nation as a whole.

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The state health survey information is of great value in answering such questions as: (1) What are the major and minor causes of illness in California? (2) How much time is lost from work because of rheumatism, heart disease, home accidents? (3) How many invalids are there in California? (4) Does health actually fail rapidly after 65? (5) What proportion of Californians go to hospitals each year, and on the average how long do they stay? (6) What kinds and amounts of illness occur in the various occupational groups? (7) Does the health of persons recently moved to California differ from that of long-time residents?

The data obtained can be used in planning for future health services in California, such as prevention of chronic disease, accident prevention, aid to the disabled, hospital and nursing home construction, rural health, and health care for older persons. The survey will also be very useful to other departments of California state government, such as Education, Social Welfare, Industrial Relations and Employment, and to other state and local agencies.

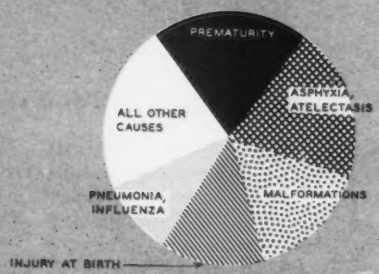
The Federal government is already using the methods developed in the California Health Survey in preparation for the National Health Survey to begin in the Spring of 1957.

It is expected that the methods used in the Survey may be adopted in the future and used widely to provide current information on which to plan and evaluate disease control programs, and to provide epidemiologic clues for investigating the relationship of socio-environmental factors to disease.

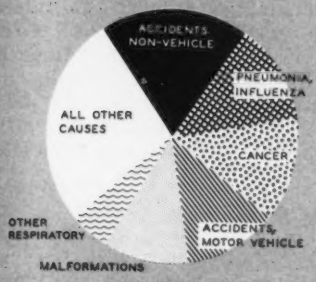
Some of the information gained by this survey is included in this report, but a detailed report will be published by the Department in the near future.

IMPORTANT CAUSES OF DEATH, BY AGE GROUP

1955



UNDER 1 YEAR



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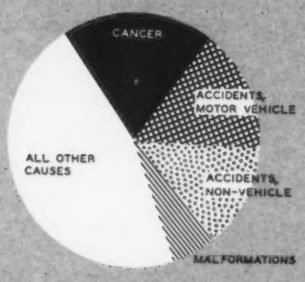

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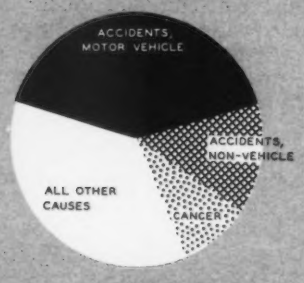

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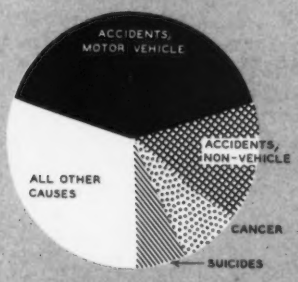
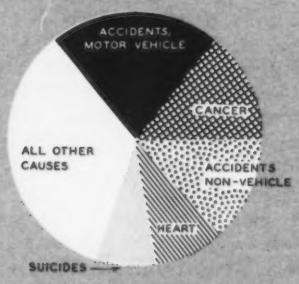


20-24 YEARS



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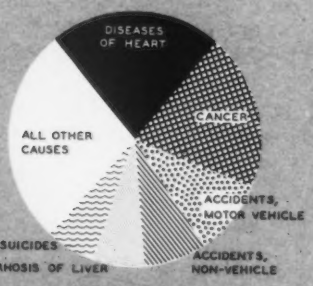

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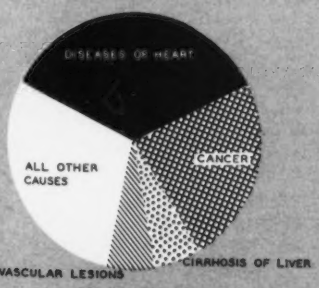

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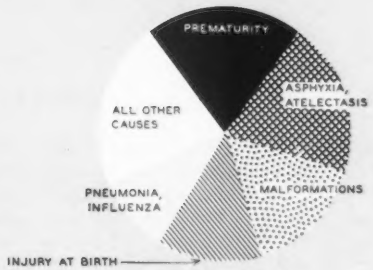

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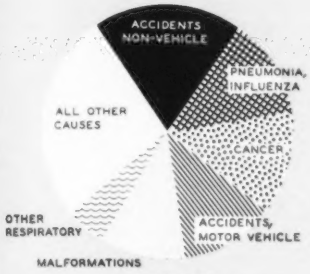

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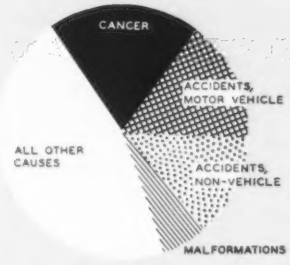

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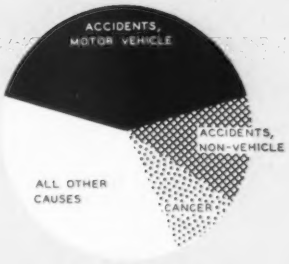

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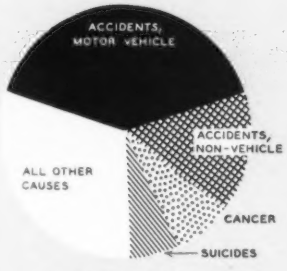

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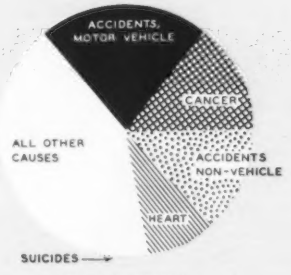

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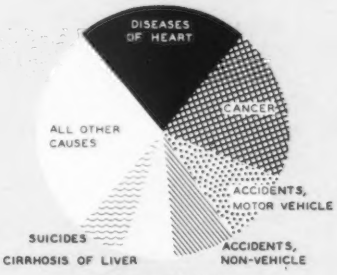

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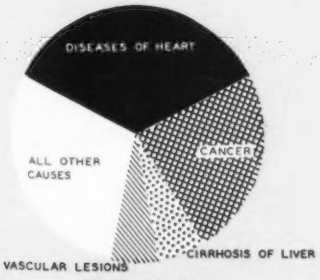

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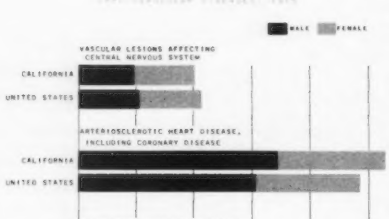
HEART DISEASE IS THE LEADING CAUSE OF DEATH FROM AGE 35 ON . . .

In 1954 and 1955 about 23 percent of all deaths in California in the age group from 35-44 were from heart disease. The proportion then went up steadily for each ten years of age—35 percent for the 45-54 group, 43 percent for the 55-64 group, and 47 percent for those 65 and over.

Since, in adults, heart disease is usually associated with disease of the blood vessels, it is even more meaningful to combine the two as cardiovascular disease in measuring the size of the problem of both death and disability from these related conditions.

The California Health Survey (May, 1954-April, 1955) shows cardiovascular disease to be an important cause of disability for all ages above 15. For middle-aged people, 45 through 64, it is the second cause of disability. For the older people, 65 and over, it is far in the lead as a cause of disability with the rate about twice as high as that of the middle-aged group.



Over the past several years the Department has utilized grants from the U. S. Public Health Service to initiate studies of the causative factors in the persistently high death rates of middle-aged men from heart disease, especially coronary heart disease. Since it is known that middle-aged American men are dying of heart disease more rapidly than women, and much more rapidly than men in other countries, or than men of past-generations in this country, it is plain that something in the modern way of life of American men accounts for this phenomenon. The problem can possibly be narrowed still further, for the cardiovascular death rate for middle-aged California men is higher than in some of the other States. Epidemiologic studies are a necessity to help find the causes of this disease.

The Department is currently carrying on studies under a Rockefeller Foundation grant to determine the parts played by diet, physical exercise, occupation, cigarette smoking and other factors in the development of heart disease. These investigations involve careful interviews with persons suffering from such disease and comparison of their life experience with control groups of persons not having heart disease; analyses of mortality by occupation and by other social groupings; and long-term follow-up of selected groups whose living habits have been defined in order to determine whether patterns of living—diet, exercise, or other—cause heart disease.

One study of persons over 50 years old which has been in progress for seven years, indicates that obesity doubles the likelihood of dying from cardiovascular disease. Another finding from the same study is that high blood cholesterol levels in persons over 50 were not associated with higher mortality from cardiovascular disease.

From a five-year study of Los Angeles City civil service employees, sponsored by the Department (1948-1953), has come information that 7 percent of those at work have heart disease and that about half of them were not aware of it. Keeping such people from employment would obviously be no answer to the problem, as this is a very common disease and people may live and work for years after an attack, or they may suddenly die from it.

Under contracts with the U. S. Public Health Service, the Department has undertaken four projects to investigate epidemiologic aspects of heart disease. The first project is a follow-up of the coronary heart disease cases detected in the California Health Survey of 1954-55. It includes the verification of diagnostic information supplied by householders during the survey, and a description of the social impact of this condition upon the individual and the family. Information from the survey will also permit the testing of some current theories about the causes of heart disease.

The second investigation entails the continued study over a period of years of the group of approximately 4,000 Californians who were given multiphasic screening examinations in 1951. The purpose of this study is to determine which of the screening tests used at that time were the best indicators of impending heart disease.

The third project is a study of the geographic distribution of cardiovascular deaths by census tract of residence. The census tracts are classified according to sociologic indices. Areas with greater or fewer deaths than expected will be examined for clues related to the pattern of life which leads to heart disease.

The fourth project is part of a continuing study of deaths from heart disease among those persons screened in the Los Angeles mass chest X-ray survey of 1950. The current phase of this work is to determine how many are still alive of those whose X-rays showed abnormal heart findings in that survey, and how many of the deaths among them since then were due to cardiovascular disease. All four projects are being directed from the Department's newly established Chronic Disease Epidemiology Center.

Such studies may well lead the way to preventive measures, and until preventive measures can be found and used, the cost of heart disease in loss of life and loss of productivity will continue to mount.

CANCER IS THE SECOND LEADING CAUSE OF DEATH FROM AGE 25 THROUGH 64 . . .

In 1954 and 1955 cancer was the second most important cause of death for Californians from the age of 25 through 64. It was the third leading cause of death for children from one to 19, and fourth in the young adult group from 20-24. With the older people, 65 and over, cancer was again in third place among the most formidable killers.

Cancer of the digestive system strikes older people especially, while brain tumors and leukemia are more likely to strike at the earlier ages.

The cancer death rate for California in 1954 was 147 per 100,000 for males and 134 for females—both lower than the rates for the United States as a whole.

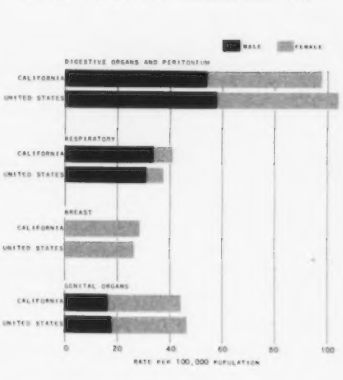
For the men of California in 1954 the risk of lung cancer was almost six times as great as for the women. About 40 percent of the cancer deaths among men were associated with stomach, lung and prostate sites. Cancer of the breast, intestines and cervix were the causes of about 40 percent of the total cancer deaths among women.

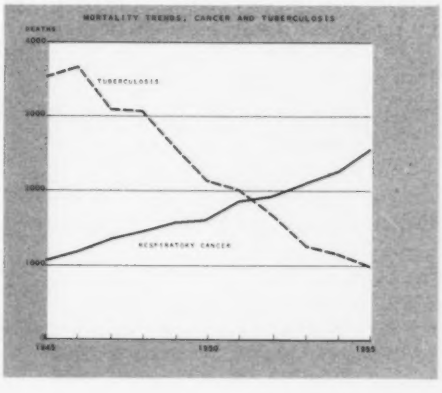
In 1928, for the first time in California's history, deaths from all forms of cancer exceeded those from tuberculosis. In 1940 the number of deaths due to lung tuberculosis was five times those due to lung cancer. Now the situation is reversed, and there are about two deaths in California from lung cancer for every death from lung tuberculosis. This reflects not only the success in tuberculosis control but a phenomenal increase in lung cancer.

Today, early detection is the best preventive measure available. While this is only secondary prevention, many lives are being saved by it and many more could be saved.

For ten years the Department has had an active cancer control program consisting of educating the public as to the need for early detection; the training of laboratory technicians in techniques for early detection, such as the microscopic examination of cervical smears; conducting of epidemiologic studies of cancer; and the development and evaluation of cancer control services in the State.

A basic element of the Department's cancer control program is the California Tumor Registry. The registry was established by the Department in 1947 and has been conducted by the Department since then, with the active cooperation of the member hospitals and the California Medical Association. When the registry was started as a pilot study only three county hospitals and six private hospitals participated. Now the 38 hospitals participating represent a third of the general hospital beds in the State. Requests have been received by the Department from 75 other hospitals for assistance in setting up tumor registries.





Before the Tumor Registry was established, cancer could only be studied in California on the basis of the cancer deaths. Since successfully treated cancer cases are not reflected in death statistics, the first purpose in setting up the registry was to get more information about cancer cases.

The participating hospitals have now reported more than 140,000 cases to the registry; some 15,000 cases are added each year. These reports give the essential information about diagnosis and treatment of the cases, as well as some of the important characteristics of the patients. They now provide a tremendous reservoir of information useful in evaluating the progress of cancer control measures. The follow-up mechanism, by which reports are made on each case every year until time of death, helps to keep patients under continuous medical supervision—as important in cancer as it is in tuberculosis and other chronic diseases. The registry supplies data for research and contributes to a better understanding of the epidemiology of cancer.

For example, the association between cancer and socio-economic status is being studied by the Department and significant differences have been found as to site, age, and survival rate between patients in county hospitals and those in private hospitals.

The registry has already supplied important information about the chances of survival after treatment for cancer. The over-all chance for survival for five years after treatment has been found to be 23 percent. The analysis made in 1955 shows that approximately one-fourth of the patients with cancer in California are being "cured," in the sense that they have survived at least five years after treatment. Another one-fourth, or a total of at least half of all cancer

patients, could be similarly benefited if current knowledge were fully applied and all patients were treated while the disease is still localized in one area of the body. Cases diagnosed and treated while still in the localized stage show more than double (52 percent) the survival rate of the combined cases in all stages. Cases diagnosed and treated in the late stages have only a seven percent chance of surviving five years. With early detection and treatment more than 5,000 lives a year could be saved in California, lives which need not be lost.

As part of the Department's program of education for early detection and treatment, a "cancer quack" exhibit has been shown in the last three years to thousands all over the State, with the American Cancer Society and the California Medical Association as joint sponsors with the Department. This exhibit, recently refurbished, consists of devices confiscated by the Department in the continuing effort to protect Californians from fraudulent drugs and curative devices. The "cancer quacks" are particularly vicious because they kill hundreds of cancer victims by keeping them from early detection and competent treatment. The Department, in conjunction with the U. S. Food and Drug Administration, has investigated many "cancer quacks" and has been successful in bringing about court convictions.

As noted in the previous section on heart disease, the Department received a grant of funds from the Rockefeller Foundation in 1955 to consolidate and advance its investigations of the relationship of occupation and other environmental factors to cancer, heart disease and other chronic diseases. It is expected that the information gained will be a substantial contribution to the Department's chronic disease prevention program. The current investigation culminates several years of epidemiologic studies in which the Department identified a few occupations as probable factors in causing lung cancer, confirmed cigarette smoking as a factor, and developed several promising leads in regard to other forms of cancer and heart disease.

This year (1956) the American Cancer Society has granted funds to the Department for a study of air pollution as a possible factor in lung cancer. The specific aim of the study will be to determine the lung cancer death rate among persons who have lived under conditions of air pollution for many years, as compared with the rate among those who have lived under such conditions for only a few years or not at all. This grant will enable the Department to extend its present work on the causation of lung cancer to include air pollution, in addition to cigarette smoking and occupational exposure.

It appears probable that the rapid increase in lung cancer in this country and throughout the world is due to exposure to irritants in our environment. Some of the environmental agents have been identified, others have not. Only when the causative factors are well understood can there be sound preventive programs for this disease which now causes about four percent of all deaths among men and an increasing number among women.

ACCIDENTS RANK NEXT TO HEART DISEASE AND CANCER AS A CAUSE OF DEATH . . .

With an estimated population gain of 565,000 during 1955, California had 572 more accident deaths than in 1954. As an important cause of death, accidents were outranked only by heart disease and cancer. Less than half of the accident fatalities were from motor vehicle accidents, and this varies with age groups. Non-motor vehicle accidents caused more deaths in children under five and among the aged than did motor vehicle accidents, while twice as many in the 20-24 year group were killed by motor vehicle accidents than by all other accidental causes.

California led the nation in the number of motor vehicle accident deaths in 1954 and 1955, as it has for several years, but the actual rates were lower for California than for 21 other States. Based on vehicle miles traveled, 32 States had higher death rates than California in 1954 and 1955.

The total number of fatal accidents of all kinds in California in 1954 was 6,685 and 7,257 in 1955—about six percent of all deaths. More children from the ages of 1 to 14 die from accidents than from all the communicable diseases combined.

These accidents are mostly in the home. Home accidents in 1954 and 1955 were responsible for about 13 percent of deaths reported in the 1 to 4 age group and 8 percent reported in the 5 to 14 age group.

More knowledge is needed than can be learned from fatal accidents. In addition, information about non-fatal accidents would come much nearer to the total picture. For example, the death rate from accidents is so extreme in the aged population as to focus attention on this group, but incidence data show that accidents are more prevalent among the younger age groups and demand attention. Similarly, the importance of home accidents as a problem is underestimated by examining death data alone. Incidence data now available show that more accidental injuries occur in the home than in any other location.

Until recently, however, the only available information on accidents, except motor vehicle and industrial, has been derived from death records. The California Health Survey has now given us much information as to the extent of the accident problem and detailed information as to where, how and to whom different types of accidents occurred. Information about occurrence describes the central problem

areas more clearly than do death statistics and provides a better basis for both research and prevention.

The Department has chosen home accident prevention as the phase of the accident problem most suitable for concentrated work by public health departments. This program was launched three years ago when the W. K. Kellogg Foundation made a grant of funds to the Department for a home safety project. Research done in this project has disclosed that the Department may be able to stimulate reduction of injury and death in this field as dramatically as has been done in the fields of industrial and of traffic accident prevention, in each of which another state agency has definite responsibility for supervising control of the factors contributing to injury and death.

Information gained by the Department shows that over 40 percent of all accidental deaths occur outside the realm of traffic, industry and air-rail transportation. The California Health Survey showed that for non-fatal accidents serious enough to require hospitalization, the average length of stay in a hospital was 17 days, while the average length of stay for all cases was slightly less than 10 days.

Working in close cooperation with local health departments, the home safety project has taken pioneering steps in investigating opportunities for State and local health personnel to tackle this little-explored field. In cooperation with the Santa Barbara City Health Department, a current accident reporting system has been developed for that city, based upon reports from hospital emergency facilities. The principal result of this study has been the demonstration that reporting of minimal accident information can be handled on the local level at little cost, and can produce data of great value for an accident prevention program.

A survey carried out by the San Francisco Health Department has enabled the project staff to analyze significant factors associated with accidents of different types. This survey also has suggested opportunities for programs of prevention which may bring about significant reduction in some of the most prevalent types of home accidents.

Recently, the California Conference of Local Health Officers has appointed two sub-committees to consider the problem of home accident prevention. Formation of these committees indicates a growing interest by local health officers in a problem which results in some five million home injuries annually in the State of California.

The Department will assist both committees to exchange ideas with other health officers on reporting methods and preventive techniques, and will assist in preparing a guide for home accident prevention to be used in local health departments.

There is convincing evidence that certain types of home accidents can be prevented through local health department programs. Organization of the sub-committees is a basic step in this direction.

In March, 1956, the Kellogg Foundation made an additional grant of funds to the Department to extend the studies of the Home Safety Project ten months beyond the original three-year life. Study of accidents will lead to organized preventive measures.

So many of the deaths in the young children are from accidental poisoning that the Department has recently been giving special attention to prevention of this type of accident. As a result of working with representatives of the Northern Chapter of the American Academy of Pediatrics, local health departments, county medical societies and medical schools, a poison control center was established in the San Francisco Bay Area, and a similar center was set up in the Los Angeles Area.

The Bay Area poison center will centralize specific information on poisons and treatment for them, and make this information immediately available by telephone to physicians. It will provide a long-term study of frequency and causes of poisoning as they occur, so that better methods of prevention can be devised. It will promote better understanding by both health workers and the public of poisoning prevention.

At a National Conference on Accident Prevention in June, 1956, the Department was commended for its pioneering efforts in the development of accident classification for use especially in non-fatal accidents.

MANY OF THE FORMER KILLERS ARE NOW KEPT IN CHECK . . .

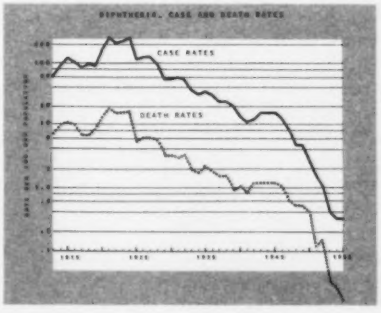
Transcendency of accidents as killers has come about partly from the success in controlling some of the most serious of the infectious diseases, among them some of the so-called "childhood diseases". Where science has given the necessary knowledge for control, it has been applied, even though sometimes tardily and not completely.

Childhood immunizations for the prevention of poliomyelitis, smallpox, diphtheria, whooping cough and tetanus are now accepted routine, but must be done more widely than they now are and must be continued if future rates are to remain low.

Everyone is familiar with the victory over smallpox. The decline in diphtheria is also a good example of the success of immunization.

In 1924 (California's worst year for diphtheria) there were over 11,000 cases reported, with almost 700 deaths, while in 1955, with a far greater population, there were only 42 cases, with 2 deaths.

In 1930 the case rate for children under 10 years was 200.3 per hundred



thousand (1,754 cases), while in 1955 it was down to 0.8 (22 cases).

An outbreak of diphtheria late in 1954 of nine cases with two deaths and another in the spring of 1956 with eight cases and no deaths points up the need for continuous vigilance. The level of immunization must be kept high. Joint investigation by the State and local health departments of the first of these outbreaks showed that the level of immunization in that locality had been allowed to drop too low; less than half the kindergarten to second grade children in the school involved had been adequately immunized and only about a third of the 5 to 15 year olds.

In recent years there has been a shift in diphtheria incidence from children to adolescents and young adults. In the five-year period 1925-1929, only 25 percent of the cases occurred after 15 years of age, while in 1950-1954, 62 percent occurred after 15 years of age. The need for adequate "booster" immunization after childhood is plain, but it must be administered with more care in the older age group.

Whooping cough is predominantly a childhood disease, the incidence being highest in children under seven years of age and the death rate highest in infants. There is now both active and passive immunization for this disease. Active immunization beginning shortly after birth has brought a substantial reduction in cases and deaths, but not as much as is possible. This is probably because people in general do not realize the seriousness of the disease, especially in infants. In the five-year period 1930-34, before active immunization was an accepted procedure, there were over 61,000 cases of whooping cough reported in California with 894 deaths; in the five-year period 1950-54 there were 21,000 cases and 89 deaths.

Measles, chickenpox, and mumps are now our most prevalent "childhood diseases", with the exception of the common respiratory diseases. They are among the viral diseases still eluding research efforts for effective preventive measures or specific treatment. Passive immunity to measles is given through the administration of gamma globulin. This is done when infants and children under three years of age are exposed.

German measles is of public health importance because of the serious effects it can have on the unborn child if the mother contracts the disease during pregnancy. The extent of the risk is not known definitely, but approximately 10 to 20 percent of living infants, born after the mother has had German measles during the first three months of pregnancy, are blind or have other congenital defects. For this reason present consensus is that female children in good health should not be protected against contracting German measles, as an attack of this disease will in most instances provide immunity through their child-bearing years.

NOW POLIOMYELITIS IS ON THE WAY TO BECOMING ONE OF THE CONQUERED DISEASES . . .

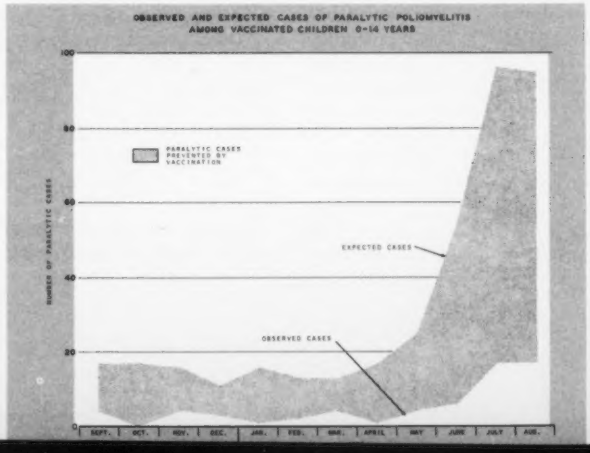
Poliomyelitis, one of the most dreaded of the "childhood diseases", now is yielding to scientific research. While this disease is not confined to children, its earlier name, "infantile paralysis" still clings, and it has been one of the diseases most feared by parents.

During the period covered by this report the Salk vaccine has been proved efficacious in reducing the amount of paralytic poliomyelitis. Remarkably few paralytic cases have occurred in California among vaccinated children. The reduction is most striking among children who have received at least the first two inoculations of the recommended series of three. A comparison of rates in vaccinated and non-vaccinated children in the age group under 15 indicates that two inoculations of the Salk vaccine have reduced paralytic cases by approximately 85 percent.

There is some evidence, too, that the vaccine may also have reduced the amount of non-paralytic poliomyelitis. A consistent shift has been noted by the Department in the percent reduction of total incidence (paralytic and non-paralytic) among those vaccinated.

Poliomyelitis is a year-round disease in California, but for purposes of comparison with other parts of the Nation, the "disease year" is taken as beginning April 1 of each year and running through March of the following year. The incidence of this disease in California during the 1955 "disease year" was unusually low. (This is probably not the result of the vaccine, as yearly incidence fluctuates greatly.) In the 1954 "disease year" there were 4,329 cases reported in California with 99 deaths, while in the 1955 "disease year" there were 2,201 cases and 39 deaths. The early part of the 1956 "disease year", which is included in this report, shows an increasing incidence, but only about 7 percent of the paralytic cases were in vaccinated children. (The increase early in the disease year did not continue, and cases soon fell below the five-year median.)

When the previous Departmental report was published, the field trials of the new vaccine were being held. Late in 1953 the National Foundation for Infantile Paralysis announced



that Dr. Jonas Salk and his associates had succeeded in preparing a vaccine for poliomyelitis under a grant of funds from the Foundation. Nationwide field trials were launched in the summer of 1954. Over 12,000 school children of Southern Alameda County participated in the field trial in California.

The Department's viral laboratory participated in the evaluation of the Salk vaccine field trials by making the necessary tests on specimens from patients in California, Nevada, New Mexico and part of Texas. The Foundation provided funds to the Department to cover the costs.

When the announcement was made in April, 1955, that the field trials were successful, California and the rest of the Nation faced the problem of mass application of vaccine. Federal funds amounting to a million and half dollars were earmarked for California for the purchase of public vaccine supplies and another quarter of a million dollars was granted the Department to study the effectiveness of the vaccine and to assist in operating a vaccine rationing system.

The Department decided to give all reported poliomyelitis cases comprehensive epidemiologic and laboratory study in collaboration with local health departments during the 1955 "disease year" as a basis for evaluation of the vaccine's effectiveness.

At first vaccine was available only for children in the 5-9 age group and for pregnant women. In December, 1955, the supply had increased sufficiently to allow priorities to be broadened to include all children through 14 years of age. In June, 1956, there was enough vaccine to make vaccination available from the public supply to children through 19 years of age, and all age restrictions were removed from the commercial supply. By June 1956, more than three million inoculations had been given in California.

With vaccination available to all children, there is no reason why most cases of poliomyelitis cannot be prevented. The goal should be 100 percent vaccination of children with the Salk vaccine. All adults should also be immunized, with especial emphasis on pregnant women, parents of small children and those in the 20-39 age group.

A dramatic achievement has been made in the fight against poliomyelitis. This disease is on the way to becoming another of the "conquered" diseases.

Since 1953, the Department's viral laboratory has been working under successive grants of funds from the National Foundation for Infantile Paralysis to develop a much needed, simple test for the diagnosis of poliomyelitis. The latest grant was made in 1956, and work is still being continued. There are strong indications that a simple test tube method of diagnosis is feasible. The present tissue method is very intricate, costly and time-consuming.

In making the tests on specimens from patients in the Western Region, as part of the evaluation of the field trials of the Salk vaccine, the Department's viral laboratory recovered a number of unknown agents which were not poliomyelitis viruses. These "orphan" viruses have been found in about five percent of the patients, mainly those with non-paralytic poliomyelitis. In 1955 the Department was given a grant by the U. S. Public Health Service to undertake a study of these unidentified agents, because they may have some role in causing poliomyelitis-like disease and because it is important to identify them in evaluation of the Salk vaccine. In 1956 this financial support was continued, and additional funds were made available for diagnostic laboratory services under the Federal Vaccination Assistance Act and the U. S. Public Health Service.

THERE ARE MANY OTHER CRIPPLERS OF CHILDREN . . .

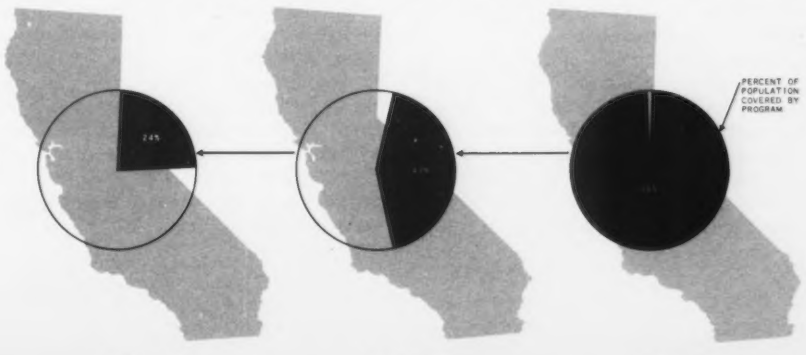
Accidents and poliomyelitis are important cripplers of California's children, but there are many other crippling or handicapping conditions that occur in large numbers. Some of these are cerebral palsy, rheumatic fever, defects of the bones and muscles (orthopedic), serious defects of the jaws and teeth, serious diseases of the eyes and ears, deformities of the heart and a number of other disabling deformities or disfigurements.

An idea of the immensity of the problem can be gained when it is remembered that the more than 50,000 children receiving service last year under the crippled children program are only a part of such children in California. A larger number are treated privately by physicians, and unfortunately many others do not come under rehabilitative treatment at all.

The purpose of the program, administered jointly by the State and the counties, is to save crippled or handicapped children from becoming dependent adults. Since the program was started in 1927, thousands of children whose parents were unable to pay for the necessary medical attention, or who could pay for only part of it, have had their handicaps corrected and have grown into normally functioning adults.

In 1942, 1,850 were helped by this program; ten years later, the number had increased to 43,500. In the fiscal year, 1954-55, the number was 50,558.

The largest percentage of the children cared for under the program were orthopedic cases; the second largest group were treated for ear



conditions which affect hearing; the third largest, for disease and deformities of the eyes; cerebral palsy cases were fourth in numbers; and rheumatic fever or rheumatic fever heart cases were fifth.

Cerebral palsy presents real problems . . .

Special units for cerebral palsied children at the elementary school level have been established in 53 locations throughout the State. California is now fairly well served by local cerebral palsy units, and medical treatment combined with education is being given to approximately 2,900 children of elementary school age.

Much more research is needed into new and more effective methods of treatment, education, and, ultimately, prevention. Some of the current research work offers hope for prevention.

Rheumatic fever is another formidable crippler of children—the crippling is of the heart. Heart damage, severe or mild, can follow this all too common disease of childhood.

First attacks of rheumatic fever occur most frequently in children between the ages of 5 and 9. In this and other susceptible age groups, streptococcal infections (scarlet fever and streptococcus sore throat) are often followed by rheumatic fever.

Much has been learned about the cause and treatment, but the knowledge necessary for primary prevention is not complete. Children cannot be immunized against rheumatic fever, but recurrences can be prevented. Much rheumatic fever and the recurrences with ever-increasing heart damage can be prevented if streptococcal infections are recognized early, antibiotics used immediately, and their use continued as a protective device.

In order to assist in the early diagnosis of streptococcal infections, the Department has evaluated laboratory methods and recommended a simple procedure for use in both public health and clinical laboratories. Proper use of such laboratory procedure can aid materially in early diagnosis and treatment as well as prevention of the indiscriminate use of antibiotics. This has been widely adopted in the laboratories in this State and interest is expressed in other states and in foreign countries.

The Department assists local health departments and local Heart Associations in an educational program in the prevention of rheumatic fever. For those children in low income brackets who are receiving care under the crippled children's program, the Department makes oral penicillin available upon recommendation of the attending physician. This phase of the Department's preventive program is carried out through the local health or welfare department.

Over 3,600 children were under treatment for rheumatic fever or rheumatic fever heart damage through the crippled children program during the fiscal year 1954-55. This was a slight drop below the previous year and may be a result of the preventive program.

Utilizing the new preventive and treatment methods with antibiotics, there is hope that permanent damage to children's hearts from rheumatic fever may become a thing of the past.

DENTAL DECAY IS THE MOST PREVALENT DISEASE OF CHILDHOOD . . .

Too few people think of dental decay as a disease, yet it is the most prevalent disease of childhood. While dental disease is constantly at epidemic proportion in our total population, it is most serious in children.

In California's children less than half of the teeth that need dental repair have received proper care. Dental decay in children is occurring at such a rate that if every dentist worked day and night, and only on children, they could not repair the damage as fast is it is appearing. Prevention is a *must*.

Science has provided a method of preventing about two-thirds of this dental decay, but application of the method has been slow.

Twenty-five years of research have proved that about one part per million of fluoride in community water supplies will reduce dental decay approximately 65 percent and give lifelong improved dental health.

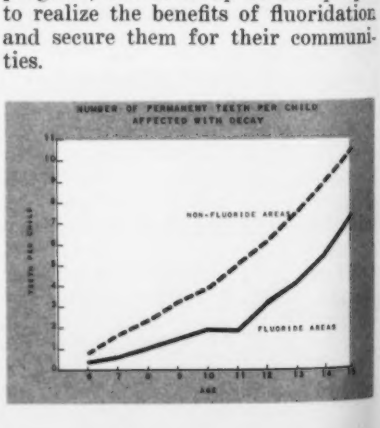
For several years the Department has been urging fluoridation of public water systems in California in those areas where the right amount does not occur naturally. Since 1954 the Department has given courses in fluoride analysis to laboratory personnel, in cooperation with the University of California and the U. S. Public Health Service.

Eleven California communities, with a population of over a million, are now using this means of improving the dental health of its future citizens. One military post has also instituted fluoridation. Five more communities have applied to the State Board of Public Health for fluoridation permits.

This is the encouraging side of the picture. An example of the discouraging side is that of Rio Vista, the first community in California to add the necessary amount of fluoride to their water supply. After five years of fluoridation and after a survey by the Department showed a 54 percent reduction in tooth decay among their six-year old children, Rio Vista citizens voted in 1956 to discontinue fluoridation.

This is only one of several reversals of the same sort, San Diego being the one involving the largest population where fluoridation was rejected by a vote of the people after a program had been underway.

The need for dental care is great, but the need for dental education is greater. The Department will continue its educational efforts in this program, but it is up to the people to realize the benefits of fluoridation and secure them for their communities.



UNSOLVED HEALTH PROBLEMS OF CALIFORNIANS BETWEEN 15 AND 64 ARE THESE . . .

There are many distinctions besides age that need to be made in California's population groups if public health time, effort and funds are to be used to the best advantage for the health of the community, so that the points previously mentioned about the health needs of the very young and the very old are to be taken as broad generalizations.

The same must be said of general statements about the health problems of the bulk of the State's population—the 8½ million between the ages of 15 and 64. This largest group naturally merges with both of the other groups. The health needs of people in this broad age grouping are not so specialized as the very young and the very old. They are California's most productive group, by the nature of things its reproductive group, and they are the healthiest group. The two other groups depend upon them in varying degrees. Accidents, cancer and heart disease are the leading causes of death from age 15 through 64.

The causes of death in this part of the population are more meaningful if they are shown by a further breakdown as to age. Note the leading causes of death on page 13.

The leading causes of disability in the age groups 15 to 64 were shown by the California Health Survey to be these:

Chronic Conditions:

Persons in the 15 to 44 year age group were disabled by chronic conditions on the average about 11 days per person per year; of those days 4½ were spent in bed. The first cause of disability in this group was disease related to the nervous and muscular systems and the bone structure, apart from arthritis and rheumatism. The second greatest cause of disability in this group was cardio-vascular disease.

The middle-aged group, 45 to 64, were disabled by chronic conditions an average of 25 days per person per year; with 10½ of those days spent in bed. The first cause of disability in this group was cardio-vascular disease.

Acute Conditions:

Persons in the 15 to 44-year age group were disabled by acute conditions an average of 5½ days a year—2½ of those days spent in bed. In the 45 to 64 year group, the average was 5 days per person per year, with 2 of them spent in bed. The causes in first and second place were the same in both groups—respiratory disease first and accidents second. Both groups spent the largest number of days in bed because of respiratory disease, the second largest number from gastro-intestinal disease and the third from accidents.

No diseases are peculiar to the 15 to 64 age group, although the venereal diseases have their greatest incidence here. Occupational diseases are most prevalent among them. Tuberculosis is a continuing problem, although diminishing.

CALIFORNIANS ARE EXPOSED TO OCCUPATIONAL DISEASES . . .

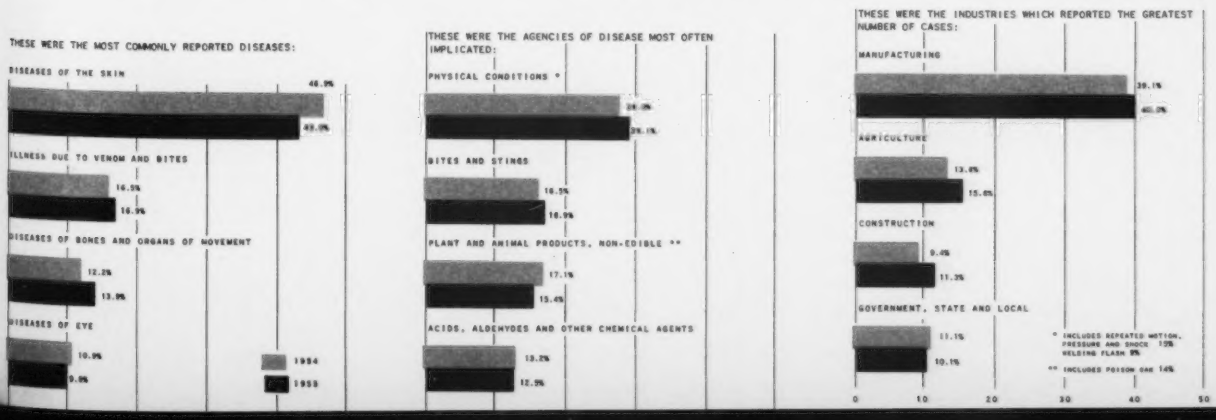
California's amazing population growth has been paralleled by industrial growth. California's agricultural industry leads the Nation, and since 1950 this State has ranked sixth in manufacturing. New industrial plants are being started here at the rate of about 200 a year.

When the Department established an industrial hygiene service in 1937 there was already a great need for special attention to occupational health, but the need has grown tremendously since. At that time there were about two and a half million employed persons in the State, with a comparatively small proportion of them employed in occupations which exposed them to health hazards if preventive measures were not taken.

Now there are over five million employed persons in California, with a large part of them in potentially dangerous occupations. In common use are dangerous chemicals, plastics, toxic solvents and fuels, which were almost unknown ten years ago. The many new insecticides and pesticides present real dangers. Ionizing radiation is the newest addition to the industrial hazards, as radioactive materials are being used on a major scale in industry and medicine. Physical hazards of extreme temperature, pressure, and vibration have also increased.

In 1954 there were 171 deaths in California attributed to occupational diseases and 226 in 1955. A total of 23,101 reports of occupational disease were received in 1954 and 24,736 in 1955. The most commonly reported diseases are shown in the accompanying chart.

Progress in industrial hygiene has sharply reduced the employment hazards which formerly resulted in many injuries and in diseases such



as silicosis and lead poisoning. However with new industrial health problems developing each year, the relationship between occupation and health demands continuing attention.

Since 80 percent of California's employed persons are covered by Workmen's Compensation laws, physicians are required to report to the State Department of Industrial Relations any illness or injury causing a disability lasting more than one day. By arrangement with the Department of Industrial Relations, the State Department of Public Health reviews and analyzes doctors' reports which cover occupational disease.

Until the California Health Survey, data on the illness problems of workers in California had been limited largely to these reports and those from the Disability Insurance Program of the State Department of Employment. Both are obviously limited as to population covered and to type of illness.

Now, data from the Survey will make analyses possible which will give a more comprehensive view of disease and accidents (non-occupational as well as occupational) as they affect the entire working population. New insight into the relationship of work to diseases can be obtained from these analyses. This information will help to determine the direction of health services in general for industry.

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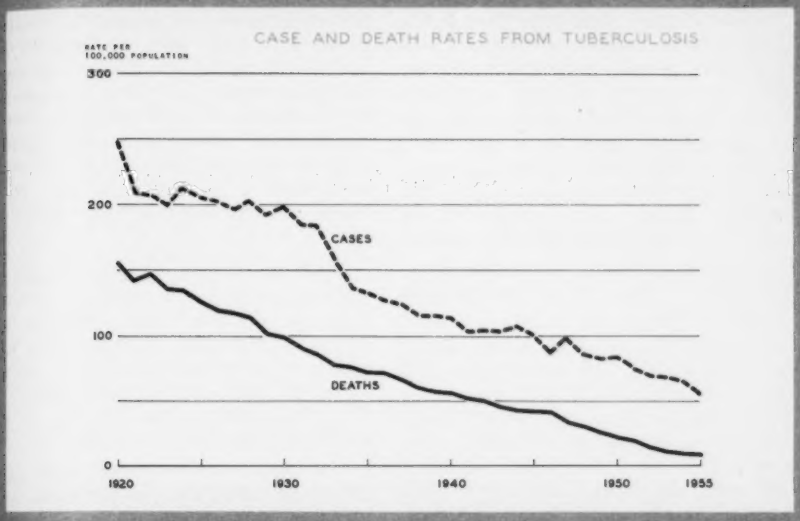

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as silicosis and lead poisoning. However with new industrial health problems developing each year, the relationship between occupation and health demands continuing attention.

Since 80 percent of California's employed persons are covered by Workmen's Compensation laws, physicians are required to report to the State Department of Industrial Relations any illness or injury causing a disability lasting more than one day. By arrangement with the Department of Industrial Relations, the State Department of Public Health reviews and analyzes doctors' reports which cover occupational disease.

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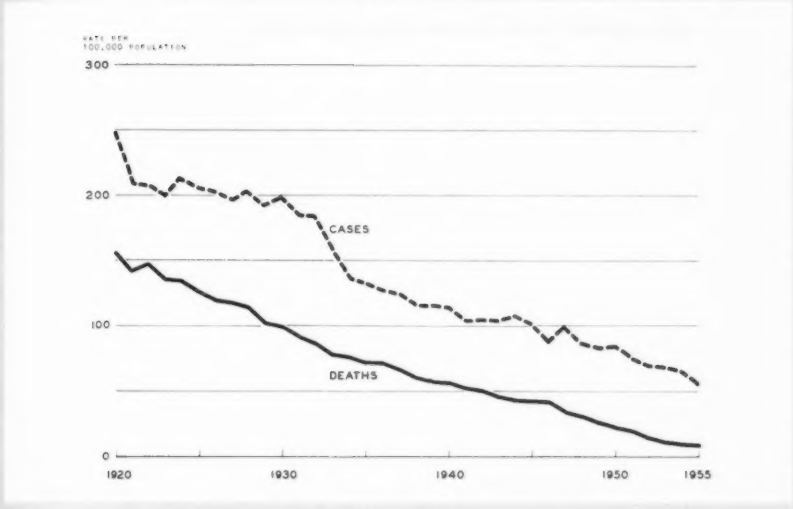

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influenza continue to take their toll of human lives especially among the very young and the very old.

In 1954 and 1955 pneumonia and influenza combined were the fourth most important cause of death in California infants under one year of age, and the fifth most important cause in children under 15 and in old people 65 and over. In 1954 there were 2,828 deaths from pneumonia and influenza and in 1955 3,175 deaths from these combined causes.

In July, 1955 the State Board of Public Health removed influenza and pneumonia from the list of diseases which physicians are required to report by single case. This was done because the reporting was incomplete and inaccurate, because differentiation from other upper respiratory conditions requires laboratory testing which is plainly impossible for every case.

The Department has an efficient influenza surveillance program, set up several years ago, through which the local health departments cooperate with the Department in furnishing much more reliable data than can be obtained from compulsory reporting. In the season of the year when the upper respiratory diseases are most prevalent, blood specimens from patients are sent to the Department's viral laboratory on a sampling basis from selected areas throughout the State. Laboratory tests establish the geographic distribution of cases from the various strains of influenza virus. This, together with reports through the surveillance program, provide the Department with more reliable information about the influenza situation in the State.

The statewide influenza surveillance program in California is part of a world-wide chain of "influenza listening posts" which operate under the World Health Organization. Since 1950 the Department's viral laboratory has represented the entire Western United States as a regional link in that chain.

There has been no serious epidemic of influenza in the State since the great pandemic of 1918-19, when 18,086 Californians died from "Spanish influenza" and over 272,000 cases were recorded. Public health agencies all over the world are continually vigilant to prevent another such pandemic. The Department's viral and rickettsial disease laboratory had its inception through that vigilance. The International Health Division of the Rockefeller Foundation gave funds to the Department to establish a research laboratory to study influenza and other diseases suspected to be of viral origin. It was completed in 1939. Research has been carried on there ever since, with an outstanding record of achievement. In 1943, the Department became the first state health department in the United States to establish laboratory services for the diagnosis of viral and rickettsial diseases.

This laboratory has become an internationally recognized center for the training of virologists. This recognition has come about because it is one of the few laboratories with the facilities and highly trained personnel to perform tests and procedures, including the newly developed tissue culture methods. Since 1949, 22 persons have been sent here on post-doctorate fellowships from 18 countries.

With the new techniques of tissue culture, much faster progress will be made in finding either vaccines or drugs for the viral diseases, many of which are respiratory (such as colds, influenza and atypical pneumonia), for which science has not yet given us effective means of control.

Vaccines have been developed for influenza, but their use for community-wide immunization is not yet recommended by public health authorities because they are effective for only a few months, and since each vaccine is specific for one strain of virus, the strain must be identified by laboratory test before administering a vaccine.

Under a research grant from the Armed Forces Commission, and in cooperation with Fort Ord, Monterey, the virus laboratory is conducting an evaluation study of influenza vaccine.

There is promise now that vaccines can soon be made which will provide much longer protection and which will combine many strains of virus, so that on-the-spot testing need not be done before using them.

ANIMAL DISEASES TRANSMISSIBLE TO MAN—THE ZOONOSES . . .

Some of California's most serious diseases are among those animal diseases transmissible to man—the zoonoses. Acute encephalitis, rabies, and psittacosis are the most important of these in the State at the present time. Other zoonoses, not viral in origin, and which are of varying importance in California now, are plague, relapsing fever, Rocky Mountain spotted fever, murine typhus, Q fever, brucellosis, and trichinosis.

Rabies is a threat

Probably the most feared of the viral zoonoses is *rabies*. Once symptoms develop, rabies is always fatal to animals and to human beings. If treatment is begun soon enough before symptoms develop, rabies may be prevented. The greatest danger to people is from rabid dogs because of the close association of man and dogs.

California now has the largest and most extensive reservoir of animal rabies infection that it has had in many years. From January to June, 1956, 210 cases of animal rabies had been confirmed in the Department's laboratories. The total for the full year of 1955 was 425, of which 246 were in dogs, 141 in skunks, and the rest in foxes, cows, racoons, goats, and bats. In the calendar year 1954, only 84 cases were found in California, of which 43 were in wildlife and 34 in dogs.

When the amount of rabies infection is so extensive in wildlife, dogs and other domestic animals face the risk of being bitten and then endangering people. Although the greatest danger to human beings is from rabid dogs, the only case of human rabies in California since 1952 was late in 1954 when a woman died from rabies which developed after she was bitten by a rabid skunk while on a

hunting trip. This was the twelfth human case in California since 1940.

But the small number of human cases is no measure of the impact of rabies on communities of the State. Every year large numbers of Californians have to undergo the long, expensive, and sometimes dangerous "Pasteur treatment" to avert rabies after being bitten by animals proved to be rabid. Much time is spent by health departments in the investigation of dog bites, and by the State Department of Public Health laboratories in the examination of specimens. These expenses, added to the tremendous loss of livestock, amount to a very large sum of money, while the worry and anxiety following bites cannot be measured.

Because of the extent of rabies among dogs in Los Angeles County, extensive animal bite investigations are carried on there by the local health agencies. In 1954, 39,761 persons were reported bitten by animals in that county. Of these, 667 underwent "Pasteur treatment" at local health centers; the number treated by private physicians is not known. The total number of Californians given "Pasteur treatment" is estimated to have been about 3,300 in 1954.

Prevention of human deaths from rabies in areas where the disease is prevalent in animals depends upon programs of animal bite investigation, prophylactic treatment of exposed persons, and control of wild and domestic animals. Control of rabies in dogs is based on registration, vaccination, and control of strays. Wildlife control is based on poisoning and trapping. Poisoning is dangerous to people and domestic animals, and trapping is slow and impractical. Controlling rabies in dogs is much sounder and more workable than wildlife rabies control.

OCT. 1915–JUNE 1917 1954 1955

The newly developed chick-embryo vaccine for dogs protects them against rabies for from two to three years. To further protect people who have been bitten by rabid animals, there is a hyperimmune serum which only became available commercially in 1954. This together with the long-used "Pasteur treatment" affords a much better preventive treatment than the "Pasteur" alone.

In course of development is a new chick-embryo vaccine for human use, similar to that now used for dogs. When this is available it will be possible to immunize persons who have a high risk of exposure to rabies. There is also a strong possibility that this vaccine may replace the "Pasteur treatment."

These protective measures, together with control of domestic and wild animals, give us the means for effective protection of people against rabies.

This is one of the viral diseases for which science has given us the means of control; we need only apply them. But in spite of the fear of the disease, there has been apathy on the part of many Californians about taking the necessary control measures. Within the last year this situation has greatly improved.

The improvement has come about as the result of six years of effort on the part of the Department and the Conference of Local Health Officers and other interested agencies and organizations to develop satisfactory bases for action against animal rabies because of its continual threat to humans. As a result, in April 1955, the State Board of Public Health revised the communicable disease control regulations relating to animal rabies, so that local control efforts could be made more uniform and effective.

The new regulations make it possible for the local health officer or the State Department of Public Health to declare a "rabies endemic area," extend the minimum period of quarantine of such areas to 365 days after the last recognized case of rabies, and provide that dogs vaccinated against rabies may be released from quarantine requirements at the discretion of the local quarantine authority. These regulations provide for the first time in California a legal basis for the recognition of canine anti-rabies vaccination—a proved public health measure.

As of June 30, 1956, 30 of the State's 58 counties had been designated rabies endemic areas as a result of rabies being reported since June, 1955. Since October, 1955, 11 counties and more than 80 cities have adopted new ordinances including vaccination for the control of rabies, and the Department estimates that a total of 19 counties and 130 cities now have provisions by local ordinance for vaccination of dogs.

ENCEPHALITIS IS A PROBLEM IN CALIFORNIA . . .

Acute encephalitis is one of the viral zoonoses important in California. This disease has been recognized as a public health problem in California since 1943. Western equine encephalitis was known to be prevalent among horses in the San Joaquin and Sacramento Valleys since 1928, but it was not until 1938 that this strain was definitely known to be causing illness among humans in California. That same year mosquitoes were proved capable of transmitting the infection from infected birds to horses and to man. In 1939 the St. Louis virus was also established as an etiologic agent of human encephalitis in California. It is now known that each of the several known types of the disease is caused by a specific virus. The two main types of the disease in Califor-

nia are caused by the St. Louis and Western equine viruses, although large numbers of cases occur of undetermined etiology.

In the six years from 1950 through 1955 there were 1,975 cases reported from 53 of the State's 58 counties. The preponderance of cases has occurred within the Central Valley. Of the 1,975 cases, 271 cases of St. Louis and 527 cases of Western equine have been definitely determined by the Department's viral laboratory.

The fatality rate for all acute encephalitis is about eight percent in California. For proven cases of Western equine and St. Louis, the fatality rate is as low as two to three percent.

California experienced its largest outbreak in 1952. When the rising incidence showed the possibility of an impending epidemic, the Department, mosquito abatement districts and local health departments took vigorous emergency measures. The Legislature granted a special appropriation and additional personnel were requested from the U. S. Public Health Service to aid in mosquito control and epidemiologic operations. Since 1952, the number of cases has been fewer, but the Department continues vigilant surveillance.

A new encephalitis virus, which has been temporarily designated as "X-E," has been discovered during intensive study of encephalitis since the 1952 epidemic. Its significance in causing disease in humans is presently unknown.

With development of many thousand additional acres of irrigated land and the great increase in the volume of community and industrial waste waters, the mosquito control problem is magnified. Mosquito-borne encephalitis is not only a threat to rural areas but to the large communities near them. The Department places primary emphasis upon preventing mosquitoes at their source by proper land and water management.

Field tests for establishing effective methods for using the newer and more potent insecticides have been conducted by the Department, in case it is necessary to arrest an encephalitis epidemic in the future by quickly destroying adult mosquitoes in threatened areas.

A pilot study on the neurological after-effects of mosquito-borne encephalitis begun by the Department in 1953 is now being carried on by Stanford University Medical School under a grant from the U. S. Public Health Service. The Department is continuing to cooperate in this study. One of the most significant findings thus far is that severe and permanent after-effects can follow Western equine encephalitis, especially in infants under three months of age. This fact is disturbing because so many cases of this type of encephalitis occur in infants—usually 20 to 30 percent. The effects consist of recurrent convulsions, motor disorders and mental retardation. A few of the children in the study who were free from convulsions after their acute illnesses have again become subject to seizures. In the other age groups, after-effects were less frequent and less severe.

There are striking differences in the age distribution between the Western equine and the St. Louis types. In 1954-55 over 48 percent of the Western equine cases were in children under 10 years of age and almost a third of those were in infants under one year of age. Only nine of the 102 St. Louis cases were in children under ten and only one case was under one year of age. Western equine encephalitis appears to be a disease of the very young and to a lesser extent of those over 50 years old.

The Department has been carrying on studies directed toward the development of a skin test for Western equine encephalitis. This test would be used as an epidemiologic tool for measuring susceptibility to the virus. This would be especially helpful in parts of the State where the disease is endemic. Preliminary results of these studies were published in 1955. Further studies will be necessary to fully establish criteria for interpreting positive reactions before this test can be used to detect those individuals who have experienced an infection with the Western equine encephalitis virus.

Laboratory methods have been developed which are highly efficient in determining the presence of the Western equine encephalitis virus in mosquitoes.

PSITTACOSIS AND A FEW OTHER ZOONOSES ARE PUBLIC HEALTH PROBLEMS . . .

A bird disease that is a public health problem in California is psittacosis (parrot fever)—a viral disease. Parakeets are the usual source of human cases and because of the astonishing growth in popularity of parakeets as household pets in the last five years the potential danger to people is growing. No vaccine for immunizing these birds against psittacosis has yet been made available. Current research offers promise in the near future for control of the infection in breeding flocks by antibiotic feeds. Until successful methods are achieved for eradication of the disease in parakeets, other control methods must be used by public health agencies.

In 1955 the pet bird industry succeeded in having new legislation passed by the Legislature. This provides a control program of banding and record keeping for all commercially sold birds. The Department administers the program. With these new tools the local health officers can more vigorously attack the commonest source of human psittacosis. It is probable that bird sources other than parakeets will be found occasionally, but the large reservoir of the disease in parakeets will engage attention in the near future. Eighty percent of the 104 human cases reported in 1954 and 1955 were associated with parakeets. There was one death in 1954 from psittacosis and none in 1955. Since the introduction of antibiotic treatment, the mortality rate has been cut to about 1 percent.

Other zoonoses

The important zoonoses in California which are not viral diseases are brucellosis (undulant fever), trichinosis, Q fever, and plague. Plague is not important now in numbers of

cases, but it is still important as a potential threat.

Q fever, a rickettsial disease, is not a well known zoonosis, but it is quite prevalent in livestock and dairying areas of the State. It was first recognized in California in 1947. Since then over a thousand cases have been reported in the State. Fortunately, antibiotics have proved efficacious in treatment of the disease in man.

The Department has made significant contributions to international knowledge of the disease by its epidemiologic investigations and extensive laboratory studies of this "new" disease, first described in medical literature in 1937 after it had been found in Queensland, Australia. In 1950 the Department's viral and rickettsial disease laboratory in cooperation with the World Health Organization devised a standard complement fixation test for use in making surveys of the presence of Q fever in various parts of the world.

Brucellosis (undulant fever) is another disease of domestic animals which man can contract. It is a diminishing public health problem in California partly because of more complete pasteurization of market milk, but mainly because it is being eliminated in cattle, goats and swine through the determined efforts of agricultural interests to prevent the inherently great economic loss.

In 1950 there were 120 cases of brucellosis reported in California with three deaths. In 1954 there were only 48 cases with one death, and in 1955, 55 cases and 2 deaths. However, because of the difficulties of diagnosis, brucellosis cases in humans are believed to be much more numerous than the reports would indicate.

Trichinosis, a disease mainly of hogs, was transmitted to 36 people in California in 1954 and 9 in 1955. There should be no cases, because the simple measure of thoroughly cooking pork and pork products will prevent the disease. Control of the disease in hogs is another matter, and is the heart of the problem. The practice of feeding raw garbage to hogs has kept the disease prevalent among hogs. Vigorous action by the State Department of Agriculture in requiring the cooking of garbage fed to hogs has recently gone to the root of this phase of the problem. It is ironic that this action was taken for control of another hog disease, vesicular exanthema, an economic threat to the hog industry, but not a threat to human health. So, indirectly, the people of California will get more protection from trichinosis.

Plague is probably the most feared of the zoonoses, even though it is now one of the "conquered" diseases. The horrors of its past still cling in the very name, but those horrors were mainly in the Middle Ages in Europe and Asia.

The first recognized case of plague appeared in California in 1900. The disease is believed by some authorities to have been introduced to San Francisco by infected rats from ships in the harbor. The outbreak persisted for five years. During that time there were 126 cases with 122 deaths. Of these cases 8 were known to have pneumonic complications. It is only in this form that the disease can be transmitted from man to man; the bubonic form is transmitted to man by the bite of fleas from infected rodents.

Such a high fatality rate would not be possible now since the advent of the antibiotics, which have been found to be quite effective against the plague organism.

In 1908, as a result of studies by the U. S. Public Health Service, plague was found in ground squirrels in California. Subsequent studies have confirmed plague in rodents generally in the State since then. The Department's laboratories have proved it to be enzootic in 36 counties of the State at the present time. It is in the realm of speculation whether prompt action for earlier control of the outbreak of 1900 would have prevented the spread of infection from city rats to field rodents, since some authorities believe that plague existed in small wild rodents in Western United States prior to the San Francisco outbreak.

Because of the widespread occurrence of plague in wild rodents, the Department believes complete extermination of this disease is not practical. The State and local health departments therefore stress prevention and control of domestic rat and flea infestation, and continued vigilance in reporting epizootics among wild rodents.

The occasional human case has been confined in recent years to instances of exposure to wild rodents. In June, 1956, California had its first case of human plague since 1947. It was the first human case in the United States since 1951, when there was a case in New Mexico. The California victim was bitten by a plague infected flea while on an outing. Antibiotic treatment was instituted, but death ensued nine days after the apparent exposure.

During the episode the Department followed its standard procedure for such incidents where one suspected case could be the start of an epidemic, as with smallpox, as well as plague. Investigation by the State and local health departments showed the presence of a number of mummified squirrels and rabbits in the area where the man had walked.

The Department maintained close liaison with all the agencies involved, including the local health departments, the hospital, and State and local departments of agriculture. After the Department's vector control team had established the area from which the victim presumably received his infection, the area was dusted thoroughly with insecticide to destroy the fleas.

MENTAL ILLNESS IS THE MOST CHALLENGING UNSOLVED PUBLIC HEALTH PROBLEM . . .

The growing size of the mental illness problem, the suffering it causes and the staggering cost of care and treatment make the search for more effective preventive measures an urgent necessity.

Great strides have been made in the prevention of mental illness by medicine and public health in recent years through the control of physical conditions leading to impairment of the brain and central nervous system. An important example is the tremendous reduction in admissions to mental hospitals from advanced cases of syphilis since penicillin treatment was instituted in 1943. Much has been done in the preventing of brain damage through control of encephalitis. Cases of encephalitis from lead poisoning and other heavy metal poisonings which used to send patients to mental hospitals are now almost eliminated. Mental cases following accidental injuries are far fewer now than formerly.

These are all examples of mental illness with a biological basis, and there is mounting evidence from recent research that some other psychotic states, especially schizophrenia, our commonest mental illness, may also have a biological basis.

These are examples of primary prevention, but secondary prevention is an approach to those conditions not known to have a biological basis. These are measures which aim at early treatment, prevention of relapse, and rehabilitation of recovered patients. These could be applied much more widely than they are now, if enough people knew of their existence and if enough trained personnel and financial support were available.

Secondary prevention implies recognition of family and community situations adverse to mental health and a concerted effort to do something about them. Those who work closely with people need to be taught to see the opportunities they have for preventive work in their daily activities. Among these are the physicians, nurses, school people, social workers, clergy, personnel supervisors, and law-enforcement and parole officers. Most important to be taught is the largest group—the parents. Some of the specialized people mentioned are in a position to influence and educate parents. They can do much besides referring for treatment those cases needing psychiatric care, although that, too, is very important in secondary prevention.

More hospitals and better treatment are certainly needed, but that will not solve the problem. Prevention is incomparably more important. Public health methods of epidemiologic research, as well as other scientific research, need to be applied to the finding of better preventive measures.

In an epidemiologic investigation the following information is sought: How many have the disease, what sort of people they are, and under what conditions they get the disease. This information can then furnish clues for intensive investigation of the causes. This needs to be done for mental and emotional disease, as it has been done so successfully for other diseases. There is a need to measure the prevalence and distribution of mental illness in the general population. Understanding of mental illness and emotional maladjustment has progressed to the point where some of the important aspects could be measured in the general population. The significance of social, familial and other situational factors associated with mental disorders could then be evaluated; the inter-relationship between physical illness and mental illness could begin to be understood.

In 1945 the California Legislature gave the State Department of Public Health authority to establish a mental health program for the prevention of emotional disturbance, in coordination with the program of the State Department of Mental Hygiene, but it did not allocate funds for the purpose. The next year, under a grant from the Commonwealth Fund, the Department started a preventive mental health program.

That same year, 1946, Congress passed the National Mental Health Act, making funds available to the states for improving "the mental health of the people of the United States through the conducting of researches, investigations, experiments and demonstrations relating to the cause, diagnosis and treatment of psychiatric disorders." The Governor appointed the State Department of Public Health as the State Mental Health Authority for the administration of these funds in California. An advisory committee was made up of members of the Department and of the State Department of Mental Hygiene. In 1951 the Governor transferred the Mental Health Authority for California to the Department of Mental Hygiene.

By that time the mental health service of the State Department of Public Health consisted of consultation to other units of the Department, consultation and teaching programs in local health departments, and aid in developing community mental health programs.

In 1953-54, reduction in Federal grants-in-aid curtailed this program and in 1955, it was temporarily discontinued for lack of staff. In 1956 the Department of Mental Hygiene, as Mental Health Authority for California, allocated funds to the Department for support of a mental health service and recommended that the service should from now on be financed by State instead of Federal money. They also allocated some Federal funds to several local health departments for their mental health programs. These included the Los Angeles City, Monterey County, Alameda County, Santa Cruz County and San Francisco Health Departments. Funds were also provided for operat-

ing the Long Beach Mental Hygiene Clinic fulltime at the Long Beach Health Department instead of once a week.

Federal funds are helpful and stimulating, but the main responsibility is with the states. When the National Governors Conference on Mental Health was held in 1954, it was brought out that less than one percent of the states' total mental health budgets went to research; all the rest went to care and treatment. The assembled Governors urged that state legislatures take steps to remedy this situation.

As with every problem, when the citizens become fully aware of the need, the battle is half won. The outlook for a concentrated attack on this public health problem looks promising in California, as interest is widespread now and more people are facing the problem openly.

ALCOHOLISM IS AN ESPECIALLY SERIOUS PROBLEM IN CALIFORNIA . . .

Whether alcoholism is considered as mental illness, physical illness, or both, it constitutes a serious and increasing public health problem. It is estimated that some two million problem drinkers lose from 22 to 25 work days a year in the United States, and cost industry about $500,000,000. The drain alcoholism places on human resources cannot be estimated in dollars.

California's alcoholism problem is greater than that of any other State. For U. S. cities with more than 100,000 population, San Francisco ranks first in the Nation in the number of problem drinkers, and Sacramento ranks second.

The 1954 California Legislature gave recognition to the problem of alcoholism when it established the State Alcoholic Rehabilitation Commission. As one of its undertakings, the Commission in 1955 contracted with the State Department of Public Health to evaluate therapies in three selected alcoholic treatment facilities. Follow-up studies of the effectiveness of various treatment methods and programs of rehabilitation will continue. The Department will also investigate environmental factors that contribute to alcoholism.

More than 2,000 Californians die annually from cirrhosis of the liver, one of the diseases most commonly associated with alcoholism. Cirrhosis of the liver is the fifth leading cause of death in the 35-44 age group, third in the 45-54 age group, and fourth in the 55-64 age group.

However, the recent studies have shown that the diseases most commonly associated with alcoholism—cirrhosis of the liver, neuritis and nutritional deficiency—probably constitute a relatively small proportion of the total disease picture of the alcoholic.

The focus of the problem of alcoholism is on prevention. Alcoholism affects the public in such phenomenal ways as to involve, directly or indirectly, the whole community, and it is a problem which requires community recognition, community planning and community action to control and prevent it.

There are many aspects of the problem that communities need to examine carefully before much can be done to prevent alcoholism. Communities must find out the nature and extent of the problem, the role of alcohol in our society, the prevailing attitudes toward its use, and the facilities and resources available and needed to prevent alcoholism.

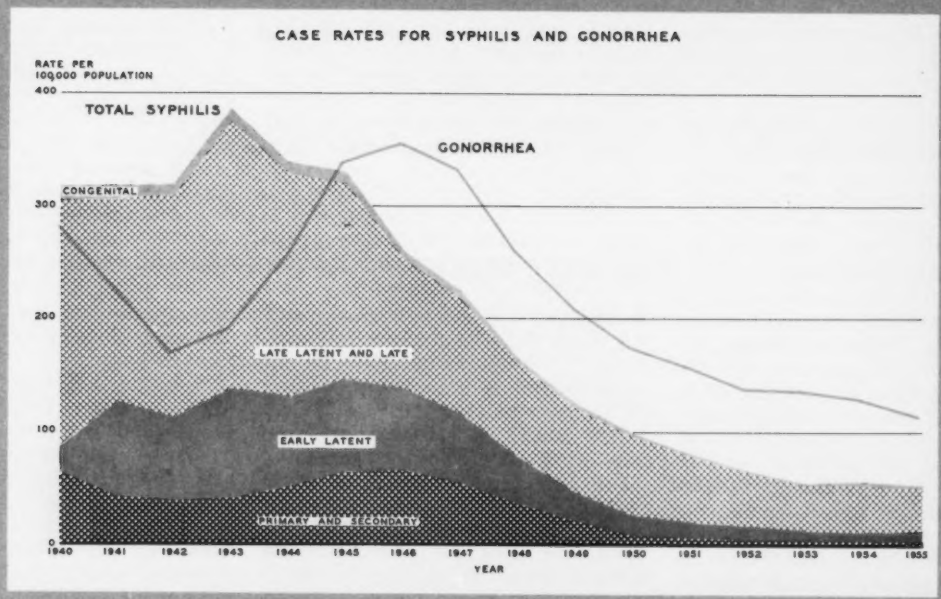
What is now known about alcohol, alcoholism and the alcoholic and what is learned in the future must be disseminated widely among the public, and must be put into practical use. Individuals and groups must be stimulated to participate in programs for control and prevention. People with problems of personal and social adjustment must somehow be given help. Besides preventive efforts, communities must provide rehabilitative treatment for the present victims of alcoholism.

VENEREAL DISEASE DECLINES, BUT IS STILL A PROBLEM . . .

Great strides have been made in the prevention and control of venereal diseases in the past ten years. This progress has resulted from a well-organized and aggressive public health program, the introduction of improved methods of therapy, principally penicillin, and, unquestionably to some extent, from social factors tending to bring about a decrease in sexual promiscuity. This latter factor includes cooperative efforts between law enforcement agencies, public health departments and other community groups for the suppression of organized prostitution, and also increased emphasis on educational and character development programs relating to training for family life. During this period our population has undergone a transition from a wartime to a peace-time economy. Hence, the decrease in venereal disease rates reflects in part the stabilization of social factors.

As a result of this, venereal disease case rates declined dramatically between 1946 and 1952. About 1952 the rapid decline began to level off, and during the biennium of this report there has been only a slight further decline in venereal disease rates. Hence, despite this dramatic progress, a large undiagnosed and untreated reservoir of syphilis and gonorrhea remains as a potential source of illness and disability. Focus of the State and local health departments is now on case finding among groups where the incidence is known to be high. There are 121 venereal disease clinics in California—91 of them administered by local health departments.

Here are statistical reminders that venereal disease is still a problem—in 1954 there were 6,845 cases of syphilis and 16,012 cases of gonorrhea reported in California; in 1955, 6,802 cases of syphilis and 14,697 cases of gonorrhea. This is a syphilis case rate of 56.5 per 100,000 population in



1954 and 53.6 in 1955, and a gonorrhea rate of 130.7 per 100,000 in 1954 and 115.9 in 1955. There were 369 deaths from syphilis in 1954 and 293 in 1955.

The reduction in infectious cases of syphilis to 6.3 percent of the total is encouraging, but cases in the later stages denote failure in case finding or treatment. There were 179 reported cases of cardiovascular syphilis in 1954 and 191 in 1955; central nervous system cases total 585 in 1954 and 535 in 1955.

In the two years of this report almost 70 percent of the primary and secondary syphilis cases and 85 percent of the gonorrhea cases were in the age group 15 to 34. The age group 20 to 24 had the highest percent of cases for syphilis and for gonorrhea, but it should be noted that the teen-age group, 15 to 19, accounted for 10 percent of the infectious syphilis cases and 14 percent of the gonorrhea cases reported.

Analysis of available data, however, does not support the hypothesis that there has been a disproportionate increase in sexual promiscuity and venereal infection in the teen-age group as compared to the total population. While juvenile delinquency undoubtedly is a factor in venereal infection in this group, it must also be remembered that there has been a considerable relative increase in the 15-19 population in the last few years.

In 1955 the Department decided that the administration of both the venereal disease and the acute communicable disease programs would be strengthened by the integration of these two previously separate activities into a single administrative unit. The Bureau of Venereal Diseases was then discontinued as a separate entity and its activities were placed in the Bureau of Acute Communicable Diseases. This does not mean that control activities will be slackened, nor does it mean that the venereal disease problem has been eliminated in California.

The Department laboratories are working to simplify the new and more specific serologic tests for syphilis and have been conducting workshops to instruct local laboratory personnel in their use. Close attention is also being given to developments in the field of treponemal serologic tests, which, while not yet available for wide use on a routine basis, may become so in the not too distant future. The Department has conducted a series of similar workshops for California university college instructors in serology to acquaint them with the latest laboratory testing techniques. These are believed to be the first such workshops to be held in the Nation.

DISEASES STILL OCCUR FROM LACK OF SANITATION . . .

Although the earliest activities of the Department emphasized sanitation and there has been unflagging activity in this field as the population growth has increased the problems, there still are sizeable amounts of disease from lack of sanitation—diseases spread by contamination with feces.

Man has always had difficulty disposing of his wastes, whether from hygienic or esthetic reasons, and the thicker the population the greater the difficulty. Disposing of sewage and protecting the health of Californians from fecal-borne disease is an ever-present problem.

Typhoid is probably the best-known of these diseases. In California ty-

phoid led all the so-called "epidemic" diseases as a cause of death from 1905-1915. When the people began to realize that most of it came from drinking dilute sewage, public health workers were able to attack the problem at its root. It took many years before adequate legislation was enacted to safeguard public water supplies in California. The main improvement has come from water chlorination, which was begun in California in 1913. Modern water filtration plants have further protected the people. Since 1924 there has been no epidemic in California of typhoid traced to large community water works. Two minor epidemics were caused by small privately owned, poorly developed water systems. Some outbreaks have been traced to human carriers. The disease is now rare enough that many physicians have never seen a case.

However, a typhoid outbreak with one death and seven other cases occurred in Southern California in the latter part of 1954. Prompt investigation and collaboration by the Department and the local health departments established that the origin was a large wedding party where the food served had been contaminated by a typhoid carrier. Health department investigators had to trace more than 200 guests to prevent secondary outbreaks elsewhere. Laboratory tests showed that the woman suspected as the source of infection was still harboring typhoid organisms since her recovery from the disease ten years before. Her name was added to the Department's confidential register of known carriers. There are now about 400 names on the list.

All the known carriers in California are kept under continuous surveillance and are given instruction by health department personnel to help them assume the grave responsibility of protecting others from infection through them. They are allowed no occupational contact with children, are forbidden to handle food except for themselves and their immediate families, and their family members are immunized against the disease with vaccine.

The pattern of fecal-borne disease has changed from one dominated by typhoid to less severe types of infection. Outbreaks of non-specific gastroenteritis occur from time to time in which water seems to be the vehicle of transmission. A striking example was the outbreak early in 1956 when a week-end sports outing for Boy Scouts at a winter resort ended with 46 of the group suffering from an intestinal disorder with nausea, vomiting and abdominal cramps. Investigation disclosed that the local water company was pumping raw creek water into its distribution system to meet the heavy demands on their supply. Laboratory tests showed the water was polluted by sewage. The Department took the necessary steps to require correction of the hazard.

This typical incident points up the great problems of sanitation in those recreational areas of our State where fulltime local public health services are not available, yet where the sanitation problems are increased by the thousands of people who throng the areas for recreation.

But the sanitation problems are even greater where the population is concentrated in the metropolitan areas. They are being met more successfully, but the continuous efforts required are tremendous. During the period covered by this report, Los Angeles City's lagging sewerage program was creating health hazards. Large sections of shore waters near outfall sewers in San Diego and Los Angeles Counties were found by the Department to be unfit for recreational purposes because of sewage bacteria. The Department had to quarantine portions of San Diego Bay against recreational use and post warning signs at other sections of the Bay affected by sewage. Smaller sections of shore waters in San Mateo County were also found unsafe and warning signs were posted by the local health officers.

Early in 1956 the Department cooperated with the local health departments, the Office of Civil Defense and the Division of Industrial Safety by checking public health safeguards during a novel and successful experiment in the use of radioactive material to trace the dilution and path of sewage effluent discharged into Santa Monica Bay from the Los Angeles City Hyperion disposal plant.

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The California Health Survey showed that the broad category "gastrointestinal illnesses" was the second largest cause of disability in the general population, next to respiratory illnesses, although not nearly so great in total volume. Much of this type of illness is non-specific and non-communicable, but it is believed that many of the common cases of diarrhea which are not reported may be communicable.

Most of the cases of *bacillary dysentery* reported are from large outbreaks such as those in institutions and in labor camps. There were 1,088 cases with 12 deaths reported in California in 1954 and 1,586 cases and 19 deaths in 1955.

The outbreaks in institutions are usually among those patients whose mental condition makes personal hygiene difficult. The Department aids in controlling these outbreaks as they occur. A recent example was an outbreak in 1955 in an institution for the feeble-minded.

Outbreaks of bacillary dysentery in migratory labor camps suggested that the lack of water for personal cleanliness, especially hand washing, was a strong factor. The Department completed a four-year study in 1954 of bacillary dysentery (Shigellosis) in migratory labor camps of Fresno County where between 60 and 70 percent of the children suffer diarrheal diseases every year. The findings showed plainly that control of bacillary dysentery can be significantly improved by the simple practical measure of making water easily accessible for bathing and washing.

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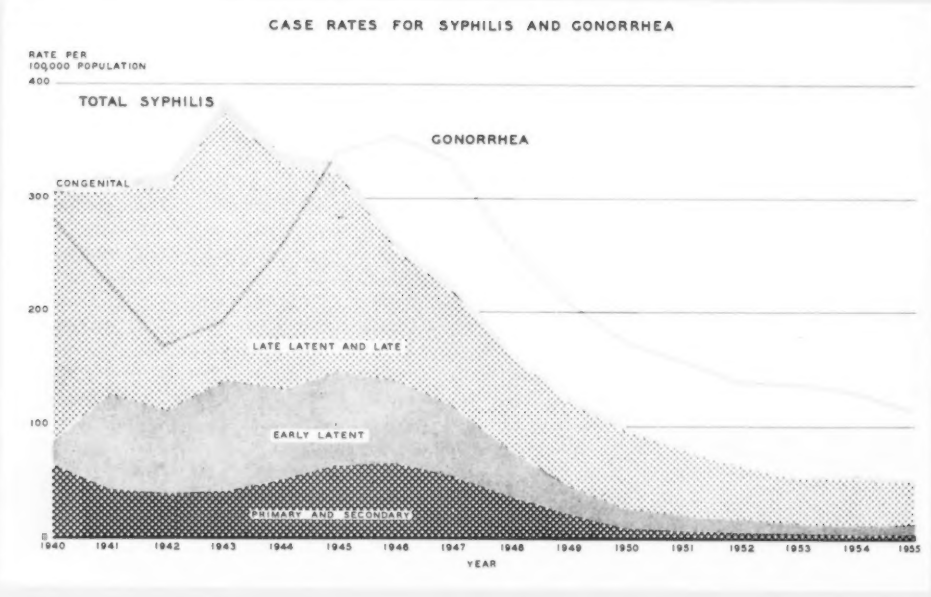

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well as in the feces. Improvement of personal and community sanitation are the best control measures available. Where there is a large outbreak in a school or institution, mass protection with gamma globulin is sometimes a recommended procedure.

There were over 2,000 cases of acute infectious hepatitis with 70 deaths reported in California in 1954, and 1,919 cases with 56 deaths in 1955. Children and young adults are more susceptible than older people, but the disease is more serious among adults. Infectious hepatitis is much commoner in rural areas than in cities, and like bacillary dysentery, may be associated with lack of readily available water for personal cleanliness.

Diseases from feces can be spread by any means that makes it possible to carry the infection into the mouth, whether it is by contaminated water, milk, food, hands, or flies. Public health workers are concerned with all of these in their sanitation activities.

The Department has recently issued a pamphlet on fly control as part of an educational program in sanitation. In 1955 the Contra Costa County Mosquito Abatement District undertook fly control in addition to their mosquito control activities. This is a pioneer venture for such districts and will be followed with interest by the Department, which administers subvention of funds to these districts.

The outbreaks of fecal-borne disease that occur at the present time are caused by a variety of organisms, some of them known to be viruses and some reported probably to be viruses. In 1956 the U. S. Public Health Service granted funds to the Department for the study of gastrointestinal diseases presumed to be of viral origin.

CALIFORNIA HAD FLOODS BUT NO EPIDEMICS . . .

California's devastating floods of December 1955 were the worst in the State's history, and disaster preparedness was put to its first real test. The six counties with major flood damage were Humboldt, Del Norte, Santa Cruz, Sutter, Yuba, and Tulare. Property damage alone in these areas was estimated at more than 150 million dollars. Death and casualty rates were low for a major disaster—60 persons lost their lives. There was a loss of more than 10,000 head of livestock, and the property damage, damage to irrigation systems and crop potentials cannot be estimated.

No disease epidemics followed in the wake of the floods. It is a source of great satisfaction to local and State health department workers that their round-the-clock efforts to prevent serious outbreaks of disease were successful. No widespread or serious outbreaks occurred in spite of the potential hazards from disruption and flooding of water supplies and the exposure and over-crowding among persons forced to leave their homes for temporary shelter.

The Department gave top priority to the emergency and assigned nearly 100 staff members to the flood areas to assist the local health departments in handling the situation.

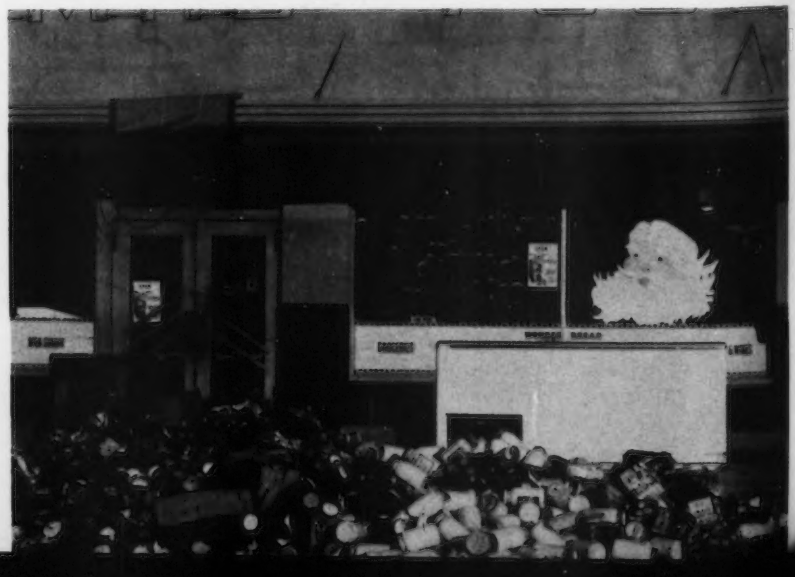
The main emergency public health operations were in the field of sanitation. The first concerns of public health personnel, state and local, were the community water supplies, sewage disposal facilities, and the commercial food supply. When these were taken care of and placed on an emergency operational basis, attention was then turned to individual problems—private water wells, family food supplies, disposal of debris, dead animals and organic material of all sorts.

Rats forced from normal habitats by the flood waters were a problem in some areas, but rat infestations and fly breeding were kept under control by the prompt disposal of the thousands of dead animals.

Commercial food stocks suspected of contamination were placed under quarantine by the Department pending inspection and clearance for use or orders to destroy. Food supplies deemed unsafe were hauled away for disposal. With the assistance of the Office of Civil Defense, portable chlorinators were brought into action as a safeguard to public water supplies. The Department sent two mobile laboratories with personnel into the flood areas to check water supplies, and to perform other laboratory tests ordinarily done by local health department laboratories.

Continuous educational activities were carried on during the disaster to let people know what precautions they had to take with their own food and water supplies suspected of contamination. Instruction was given people on how to disinfect their private water systems and to salvage food supplies. They were advised about disease prevention and immunization when it was needed.

Local health departments throughout the State gave immediate assistance, and aid came from the U. S. Public Health Service and the U. S. Food and Drug Administration as well. Notable assistance came from the Farm Bureau and Grange, the University of California Extension Service, the Federal Office of Civil Defense, the American Red Cross and the U. S. Army Engineers.



KEEPING FOOD SAFE IS A CONTINUOUS JOB . . .

Protecting Californians' food is a never-ending task, requiring much education of both the public and the food industry, a good deal of persuasion, continuous inspection and law enforcement. The public has to be protected against adulterated, contaminated and unsafe foods and drinks, and everyone has to be taught safe food preparation, storage and service.

Because more people eat away from home than ever before and food-borne disease is much too common, restaurant sanitation continues to be an important part of health department programs. Actually, about 25 diseases can be transmitted by insanitary food practices. Those commonly transmitted by mucus left on eating utensils are influenza, diphtheria, pneumonia, scarlet fever, whooping cough, colds, trench mouth, mumps, and measles. "Food poisonings" are the commonest of all diseases from insanitary food practices, and they are the most dramatic because such large numbers of people can be stricken at one time.

Courses in food sanitation are carried on by many local health departments in California. The Department recently revised its comprehensive guide for the use of sanitarians conducting food sanitation classes. The instruction of food industry employers and employees is supplemented by inspection and law enforcement, but no amount of law enforcement can take the place of educating the industry as to its responsibilities for disease prevention and educating the public as to what to require of the food industry. The public has to be educated, too, as to safe food handling at home and at large social gatherings.

Of course, the food has to be good to begin with, and the Department works continuously with the local health departments and other federal, State and local agencies, as well as directly with food processing industries to insure that only safe food is put on the market.

Since 1925 the Department has had the responsibility for licensing and inspecting all California canneries. At that time the State's canning industry was threatened because deaths had been caused by botulism from foods canned in California. Since the State cannery inspection was begun, most of the sporadic outbreaks of botulism that have occurred in California have been from foods improperly canned at home; a few have been from products commercially canned out-of-state.

Botulism, a highly fatal form of food poisoning, is fortunately rare. Six cases were reported in California in 1954 and three of the victims died; three cases and two deaths were reported in 1955. Improperly home canned foods were the causes.

Even if the poison has developed in the canned food, boiling before serving will destroy it. Cases usually result from eating the poisoned food as it comes from the can, or only slightly heated. The only specific treatment is with botulinus antitoxin. The supply of antitoxin is extremely limited, as the few cases occurring do not warrant mass production. At present Lederle Laboratories maintains an emergency supply for use in Southern California and has arranged for the Department to have a small supply in Northern California. The local health departments handle the emergency requests.

Mussel poisoning is another highly fatal form of food poisoning which has been kept under control for years in California by quarantining mussels from the entire California coastal shore, including San Francisco Bay, from May 1 each year until October 31 or later, if laboratory tests show that the edible flesh still contains the deadly poison present in shellfish during the summer and early autumn. The poison, one of the strongest known, is contained in the plankton on which the shellfish feed during the warm months. It is not poisonous to them, but is highly poisonous to humans who eat the toxic shellfish. California had five cases of mussel poisoning in 1954, the first reported since 1948.

Mussels are the most common source of the poisoning, but clams may also cause it. Health officers of the coastal and Bay counties were instructed by the Department in May of 1956 to post quarantine warnings covering both mussels and clams.

Chemical food poisoning

With the increased use of the new insecticides in agriculture, foods have to be inspected to make sure poisonous residues are not left on them. Fruits and vegetables must be washed thoroughly to remove any traces of sprays. Chemical poisons of all sorts can be introduced into food through carelessness, but especial care must be used that insect sprays are not used over or near foods.

Bacterial food poisoning

The chemical food poisonings are few, but bacterial food poisonings are far too common. An example was the Thanksgiving dinner in 1954 which made 97 U. C. students ill and hospitalized 33. Usually only the large outbreaks are reported, but over 1,400 outbreaks were reported in 1954 and 1,500 in 1955.

The largest number of food poisoning cases come from food which has been contaminated during preparation and then allowed to stand at room temperature for an hour or more. This gives the bacteria, usually staphylococci, time enough to multiply and throw off poisons in the process. Within two to four hours people eating the food can get very nauseated and some may need hospitalization. Fortunately it is rarely fatal.

The foods most likely to cause this form of food poisoning are the cream-filled pies, meat and fish salads and creamed dishes. Most of the reported outbreaks are from large group gatherings where the food is prepared in advance. Too often there is insufficient oven space for keeping the hot foods hot enough to kill bacteria and insufficient refrigerator space to keep the cold food cold enough to keep the bacteria from multiplying.

A more serious form of bacterial "food poisoning" than the staphylococcal is salmonellosis or salmonella food infection. The diarrhea, fever and nausea from this form of food infection is sometimes fatal. Almost a

thousand cases were reported in California in 1954, with 7 deaths; 1,049 cases and 15 deaths were reported in 1955.

In salmonellosis the illness comes from direct infection by the salmonella bacteria, not by the toxins produced as in staphylococcal food poisoning. Illness develops within six to 48 hours after infected food is eaten. Thorough cooking will kill these bacteria and refrigeration will keep them from multiplying to large enough numbers to cause illness. Persons recovering from salmonellosis can remain carriers of the infection for varying lengths of time. No one who has had a case of salmonella food infection is allowed to work as a food handler until laboratory tests show he is no longer a carrier.

One way salmonella get into food is by contact with infected rats and mice. Sometimes the food is already infected when it is bought. Foods most likely to carry this infection are poultry and dried eggs.

Food poisoning bacteria may grow in any food ready to serve if it is *kept longer than one hour at room temperature* before it is eaten. Everyone must learn the simple precaution: Keep cold foods cold—hot foods hot.

RURAL HEALTH PROBLEMS ARE A CHALLENGE . . .

Facts do not bear out the common belief that living in the country is more healthful than living in the towns and cities. The World War II Selective Service rejection rate for farm youths was 40 percent higher than for any other group. Certain diseases such as pneumonia, infectious encephalitis, whooping cough, undulant fever, infectious hepatitis, and heart disease are slightly more common in rural areas. The diseases of animals transmissible to humans are also more common in the country than in the city, especially the diseases of livestock, such as brucellosis and Q fever. Almost all the unpasteurized milk sold and consumed in California is in the rural areas, so that most of our milk-borne disease is in the rural populations.

In the field of farm and home accidents the rural areas have many hazards. Farming and lumbering are hazardous occupations. The greatly increased use of highly toxic pesticides and other poisonous chemicals in agriculture is presenting an increasing health hazard.

Certain diarrheal diseases are a problem in some of the rural areas of the State, especially among the infants and young children of migratory farm workers. Studies recently completed by the Department showed these to be directly related to sanitary conditions, particularly the availability of water for personal cleanliness. The infant death rate is about 20 percent greater in rural than in urban areas. Infant deaths from diarrheal diseases are almost twice as great as in the cities.

Environmental sanitation

It is in the field of environmental sanitation that rural living poses special and characteristic problems. Sparsity of population is an important factor. A farmer may have every modern convenience of electrical appliances and plumbing, but the problems of keeping his water supply pure and of properly disposing of his sewage and waste are his own. He may not be able to solve them by himself. The rural dweller needs the technical assistance of organized community health services to help him solve these problems.

As California's population increases, especially in the rural areas, community facilities for supplying pure water and disposing of garbage and sewage need to be developed. Each community has the responsibility for studying the problem and for developing adequate water and sewage facilities. California is growing faster than public sanitary facilities can be provided.

Rural health problems are attracting the special attention of the California Rural Health Council, which was formed in 1953. The Department is a member, along with the California Farm Bureau Federation, the California Academy of General Practice, the California Congress of Parents and Teachers, the California Medical Association, the University of California Agricultural Extension Service and the School of Public Health. In February, 1955, under the auspices of the Council, the first state-wide Conference on Rural Health was held in Fresno, with wide representation and much interest from all parts of the State. Subjects considered were health problems related to population growth and movement, distribution of medical and allied health services, and community health services in rural areas.

Each type of rural area has its special health problems. These areas can be divided roughly into 1) the agricultural, 2) the non-farming rural areas near cities and towns, and 3) the mountainous rural areas, where lumbering and mining are the chief industries and which are recreational playgrounds.

1. Agricultural

As with all rural areas, health problems in the farming areas are headed by those related to environmental sanitation. Environmental sanitation includes control of disease vectors, such as the mosquito carrier of encephalitis. The encephalitis threat focuses here with the thousands of irrigated acres which are potential mosquito breeding places.

Migratory labor

One health problem of the agricultural parts of California relates to migratory farm-labor families. These families move from crop to crop, averaging 160 days of employment a year. Migratory labor is employed principally in cotton, fruits, vegetables, and sugar beets. Most of the larger growers have housing for these families, but many of the smaller growers do not. Some families obtain their water from irrigation ditches, and have inadequate sanitary facilities, if

any. All diseases are more prevalent among them than among the general population. Diet-deficiency conditions are especially common.

Medical care for the migratory family is a serious problem. By the nature of their occupation they cannot meet the residence requirements for free medical and hospital care and many of them cannot pay for care.

Children go into the fields not only because the family needs their earnings but because there is no place to leave them during working hours.

Infant mortality is high among these migrant families. In 1954, when the state-wide rate was 23.7 infant deaths per 1,000 live births, the rate was 35.8 in Imperial County and 35.3 in Kings County in the San Joaquin Valley.

Much has been done to improve the conditions of the migrant laboring families, but much remains to be done. Since the early 1930's, when farm workers flooded into California from the Midwest "dust bowl" and the Southern cotton states, California has been struggling with the problem of migratory farm labor. The Department and local health departments have worked together to set up child health conferences and immunization clinics in labor camps. All the other health, welfare, and education agencies have been active too, in bettering conditions for these people. In some areas the "temporary" residents have learned to work together in sharing responsibility for community problems.

Fresno County, where the seasonal variation in employment is over 250 percent, is an outstanding example of shared effort to start their migrant families on the way to better health. The problem is particularly acute there because the cotton picking is the "end of the season" for many migrant workers, with a three to four month break in employment from January to April.

The Fresno Westside Project began in 1950 when the Department assisted the local health department in combatting an epidemic of infant diarrhea. Out of this experience, a Rural Health and Education Committee was formed which is still very active. It now includes about 60 persons. Several growers have donated buildings for child day-care centers, clinics and other purposes. Camp housing has been improved. Tangible health gains have been made.

Field sanitation

Closely related to the farm labor health problem is the sanitation problem in the harvesting of field crops. Until the last few years nearly all fruits and vegetables, after harvesting by field crews, were trucked to packing plants to be prepared for distribution. Now, with the development of vacuum cooling and the use of cardboard containers, this is no longer necessary with certain crops, and the packing operations are done in the field.

This means that farms and orchards have become food processing plants, with little provision made for water supply, sewage disposal, personal hygiene, and general cleanliness. This situation poses at least three public health problems: risk to the workers of contracting a communicable disease through drinking contaminated water or being required to work and eat without handwashing and toilet facilities, risk to consumers from food contaminated with human feces, and risk of the spread of disease to the general public if the field crews are carriers of enteric diseases.

In the spring of 1955, the Department, together with the State Department of Industrial Relations, sent staff teams to survey conditions in the lettuce fields. On each team was a sanitarian from the Monterey Health Department.

At the request of both State agencies, the Monterey County Health Department developed a pilot program for solution of the problems. Labor unions and the Growers-Shippers Vegetable Association cooperated whole-heartedly in the project. Mobile chemical toilet units were developed, equipped with handwashing facilities of running water, wash basin, paper towels and soap, and mounted on wheels as a trailer unit. By June, 1956, 26 of these units had been bought by growers and many more were expected to be ready for use before the next harvesting season. Clean drinking water is supplied from portable pressure drinking fountains or from other containers with paper cups.

This should offer a practical solution to the problem, which can be adopted generally. At least, the problem has been recognized in California, the public health and aesthetic implications have been made clear, and cooperative action has come from agricultural and labor interests.

2. *Non-farming rural areas near towns*

It is difficult to know just where to draw the line between urban, suburban and strictly rural areas. The non-farming, unincorporated areas near towns and cities can be called "urban fringe" if they are close enough to cities, but some areas on the fringes of the agricultural communities are "rural slums" in many instances. They present serious health problems, and the provision of public health protection is beset with difficulties.

Again the main problem is sanitation, and it is complicated by poor housing. In some areas around the agricultural communities of the State shanty towns have developed, unregulated and uncontrolled by local ordinances or state statutes. Their water supplies and sewage disposal facilities are inadequate and their environment constitutes a health menace to their inhabitants.

3. *Mountainous rural areas*

The scenic grandeur of California mountains and forests attracts many thousands of recreation seekers and tourists the year round. Since the comparatively small resident population cannot finance adequate public health services, even for their own protection, the problem of protecting the health of the hordes of visitors is a critical one.

Sanitation is the first and basic need, as with the other rural areas, but here it is even more acute because of the tremendous number of visitors. Repeated localized outbreaks of gastrointestinal disease in several resort areas point up this need.

Because these areas have been without organized public health services, knowledge of the incidence of communicable disease is incomplete. The incidence is no doubt higher than available statistics would indicate, especially for tuberculosis, venereal disease and the common gastrointestinal diseases. Outbreaks of infectious hepatitis from common sources undoubtedly occur more frequently than the reported individual cases would indicate. The level of immunization against diphtheria, smallpox, and whooping cough is undoubtedly lower than in areas where medical and public health facilities are readily available. The infant and maternal mortality rates are higher in these counties than in any others in the State except those with large migrant labor populations.

The 15 mountain counties have only two percent of the State's population, spread over 47,000 square miles—30 percent of the total land area. Compare this with Los Angeles County's more than five million people in 4,000 square miles! The vast expanses of land, the difficult terrain, the narrow tax base, the sparse permanent population—all tend to complicate the problem of protecting the health of the permanent and transient population.

But there is no lack of interest in this problem, no apathy. Something is being done about it. The next section describes an exciting experiment in local public health administration now under way in California.

LOCAL HEALTH DEPARTMENTS NOW SERVE 99% OF THE STATE'S POPULATION . . .

Local health departments are the heart and core of public health effort. A major part of the energies and resources of the State Department of Public Health is devoted to strengthening existing local health departments and fostering the development of local health departments in those areas of the State now without organized public health services. One of the goals of the Department is to have every Californian under the protection of organized local public health services.

At the close of this report period (June 30, 1956), the Department was closer to this goal than ever before, but there were still over 158,000 persons without these services. This is slightly more than one percent of California's population, scattered through ten large mountain counties in Northern California. These are counties of small resident population which attract huge numbers of visitors, summer and winter, because of their scenic beauty and their recreation and sports potentialities.

At the beginning of this report period (July 1, 1954) there were 15 such California counties without organized public health services—a total population of only 172,000 in an area of 34,190 square miles. This is an area the size of five New England States, but with a population equal to Sacramento and Bakersfield. That five of these counties now have organized public health services and two more will have them beginning the new fiscal year (July 1, 1956) is the result of California's new experiment in local public health administration.

The Department is trying a new approach to the solution of the difficult problem of providing fairly adequate public health services in those rural counties so sparsely populated that they cannot support independent local health departments. The problem is not peculiar to California, so this pioneering venture into a new kind of local public health administration is being watched with interest by public health people in other states.

The problem is especially acute in California, however, since not only the health protection of the permanent population but that of the many thousands of tourists and recreation-seekers is a public health necessity.

Staff of the Department had numerous meetings with regional county supervisors associations and with individual county boards of supervisors to make them fully aware of the problem and encourage them to work toward a solution. As a result of these meetings, the boards of supervisors of Trinity, Glenn and Tuolumne Counties asked assistance from the Department in making surveys of the health conditions, resources and services of each of these counties. The surveys were completed in 1954 and 1955. They aroused wide interest locally and gave the Department valuable basic information.

Further meetings brought out the need for an additional section to the Public Health Assistance Act of 1947 to make it possible for a county with a small population to contract with the State Department of Public Health to organize and operate a local public health service.

This legislation was passed by the 1953 Legislature, adding Section 1157 to the Health and Safety Code. Under the provisions of this section, a county with a population of less than 40,000 can enter into a contract with the State Department of Public Health for public health services, if their board of supervisors requests the contract and appropriates for the purpose at least 55¢ per capita for their total population.

At first glance this does not seem to be very different from the district plan commonly used by state health departments for furnishing services in such areas, but the great difference is that under California's contract system, local interest, responsibility, and a large degree of autonomy is maintained. It is a genuinely joint arrangement. There is no standard contract; each one is drawn up individually after discussion with the board of supervisors and any local people they wish to include. There is no stereotyped program to be put into operation; each is developed separately to meet the needs of that particular county. The board of supervisors can recommend changes at any time, and the Department makes no program changes without their consent.

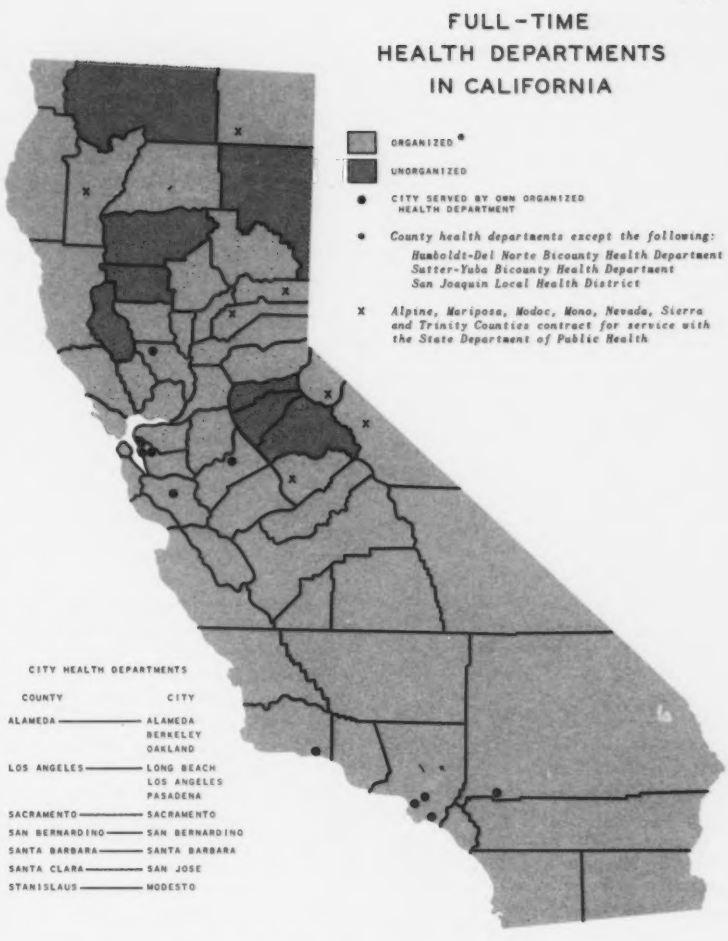
The board appoints a local physician as health officer, provides offices, office supplies, utilities and the services of nontechnical personnel (at least, one clerk). The State Department of Public Health employs the technical staff, and furnishes medical supplies and biologics. Laboratory services are provided by the State Department of Public Health laboratories.

All the Department's consultative and advisory services are available to these counties, as they are to all local California health departments, but the relationship is closer than with the others. A medical officer in the Department was assigned to coordinate these contract county services early in 1955, and the 1955 Legislature authorized an additional medical officer to assist the local staffs in immunization programs, communicable disease control, maternal and child health programs and other medical activities.

A typical technical staff in one of these contract counties consists of one or more public health nurses and sanitarians. The staff reside in the county and carry on their activities as they would in any full-time health department, receiving their day-to-day instructions from the local health officer.

The first county to contract for services under this new plan was Mono County, population 2,400, area 3030 square miles. They contracted in July 1954. Alpine County, our smallest in population (300 people in an area of 776 square miles) contracted in January 1955, and the services were combined with Mono into a bicounty unit. Trinity County (population 6,700 in an area of 3096 square miles) and Sierra County (population 2,800 in 923 square miles) contracted separately in July 1955. Mariposa County (population 4,500), transferred from a provisional full-time health department to a contract type in January, 1956. Nevada County (population 18,200) and Modoc County (population 9,700) contracted for services to begin July 1956.

This will leave about 130,000 Californians without organized public health services in their place of residence, and thousands more Californians without this protection when they visit these areas for recreational purposes. But if the contract plan works out successfully it is possible that the entire State can have organized public health services in the not too distant future.



At the beginning of the 1956-57 fiscal year, California will have 41 full-time county health departments, serving 43 counties, 7 counties under contract, 8 unorganized and 10 full-time city health departments.

HOSPITAL AND HEALTH CENTER EXPANSION CONTINUES, BUT IS OUTDISTANCED BY POPULATION GROWTH . . .

In the past ten years of California's phenomenal growth, giant strides have been made in the construction of hospital and public health facilities, but the population is increasing at a pace not easily overtaken. In the decade 1946-1956, California's population increased by 4,000,000, or nearly 50 percent, from 9,206,800 to 13,600,000, and it is expected to continue with an estimated increase of 400,000 a year for the next ten years.

As of June 30, 1956, there were 106,975 existing acceptable beds in the State, including the categories of general, chronic, tuberculosis and mental hospitals, and nursing homes. Additional beds needed at present are estimated to be about 57,000. It is estimated that California will need more than 75,000 additional beds by 1960 and nearly 100,000 more than we have now by 1965.

Passage of the Federal Hospital Survey and Construction Act (Hill-Burton) in 1946 gave real impetus to the construction of needed hospitals in California.

The State Department of Public Health is responsible for administration of the Hospital Survey and Construction Program in California, and functions with the advice of the State Advisory Hospital Council, whose membership is appointed by the Governor.

In the decade ending June 30, 1956, more than 30,000 beds, including those in State institutions, have been constructed and equipped at a cost of nearly half a billion dollars. Of the 30,000 beds, 6,905 were constructed with assistance from State and Federal funds.

State and Federal funds totaling $58,635,569 have assisted 130 projects since 1946. Of these 130 projects, 74 were general hospitals, 5 mental, 6 tuberculosis, 10 chronic, 6 nursing homes, 21 public health centers, 5 diagnostic and treatment centers and 3 rehabilitation facilities. In the period of this report, State and Federal funds totaling $8,000,000 were allocated for 1954-1955, and $11,000,000 for 1955-1956.

The Hospital Survey and Construction Program was expanded by Congressional amendment in 1954 to provide assistance specifically in planning and constructing chronic disease hospitals, nursing homes, diagnostic and treatment centers, and rehabilitation facilities. The 1955 Legislature passed Assembly Bill 146 authorizing California's participation in the expanded Federal program and to provide State financial assistance to non-profit hospitals.

Major emphasis in the past 10 years has been on construction of general hospital beds. In the early years of the program, assistance was provided primarily for development of relatively small facilities in isolated, rural areas without hospital facilities, or with inadequate facilities. Expansion during the past 10 years has involved not only an increase in the total number of hospital beds in the State, but also the development of facilities in areas experiencing rapid population growth near the urban centers.

The largest population increases since 1945 have occurred in suburban areas where communities have developed of sufficient size to require their own hospital facilities. Since the phenomenal growth of suburban areas appears likely to continue, the provision of additional hospital facilities to meet the needs in newly developed areas will continue to be a major factor in hospital planning and construction.

A major factor in planning for hospital facilities is the increasing number of elderly people, whose needs for hospitalization are greater than those of the younger age groups. The State's population age 65 and over is currently estimated at 1,160,000 and is increasing by more than 40,000 a year. According to the California Health Survey, people over 65 use twice as many general hospital days per capita as do the younger age groups. The best available estimates indicate that approximately ten days' care a year in medical institutions must be provided for every person age 65 or over, of which one-third will be in mental institutions and nearly one-half in facilities for chronic diseases. To meet this problem, communities must plan facilities for long-term care of aged persons, such as chronic disease hospitals and nursing homes in order to relieve the demand on acute beds of general hospitals.

In recent years there has been an appreciable decrease in the average length of stay in acute hospital beds, but further reductions in length of stay seems improbable. Of major importance in the future will be the provision of chronic hospital and nursing home beds for the increasing number of elderly people, the location of these facilities to be in relationship to the distribution of the elderly population within the State.

Estimates since 1950 indicate that the proportion of older people is increasing in most of our mountain and isolated counties, while in new suburban developments, the population characteristically is composed of younger families with children.

Mental hospitals

State-wide planning for mental hospitals recognizes the need for short-term acute psychiatric care in general hospitals and the need for additional facilities providing long-term care for mentally disturbed patients.

Tuberculosis hospitals

Many areas of California appear to have a decreasing need for tuberculosis hospital beds. Current treatment methods including home care programs have significantly reduced the duration of hospital stay. Many existing facilities are being converted to use for other types of long-term care. It is anticipated that no additional tuberculosis facilities will be needed in the State.

Aid in planning

In addition to administering the allocation of funds under the Hospital Survey and Construction Program, the Department assists communities in studying their hospital needs and in planning their expansion programs.

The State Department of Public Health assists communities in developing community surveys, building programs, cost estimates and other elements significant in hospital planning. The Department also makes available, upon request, technical publications relating to planning and cost of hospitals. The experience of the staff of the Department in working with many communities throughout the State in developing programs for new and additional hospital facilities has emphasized that sound hospital planning is of utmost importance. No two communities have identical hospital problems. Community customs, attitudes, availability of physicians, proximity to other cities and many other sociological and economic factors are of extreme importance in community planning for hospital services.

AIR POLLUTION IS THE NEWEST URBAN SANITATION PROBLEM . . .

Like other industrialized and heavily populated sections of the world, California now faces air pollution as a major environmental sanitation problem. Although air pollution has been most severe in the Los Angeles Basin, it occurs in each of the State's metropolitan communities. California communities are in different stages of development, and, as a result, are experiencing varying degrees of impairment of air quality. The chief concern presently is in the large metropolitan areas—Los Angeles, San Francisco Bay Area, and San Diego—but local problems are found in rural areas and in counties without air pollution control districts.

Evidence from disastrous occurrences elsewhere, and limited data available from California experience are indicative that air pollution poses a significant public health problem—one requiring further investigation because of its immediate interference with the physical, mental and social well-being of California residents; because of its possible, but as yet undetermined, cumulative, adverse effects upon health; and because of its disaster-making potential, should pollution concentration build up in any area.

The Department began a study of air pollution in October, 1954, when Governor Knight allocated $100,000 to the Department from emergency state funds following an unusually severe smog attack in the Los Angeles area.

In recognition of this growing problem, the State Legislature in 1955 passed two important air pollution bills. One created an air pollution control district in the San Francisco Bay Area, and the other authorized a program of air sanitation in the State Department of Public Health. To carry this Department's responsibility, a Bureau of Air Sanitation was established within the Division of Environmental Sanitation and an Air Sanitation Laboratory was established in the Division of Laboratories. The new Bureau of Air Sanitation will carry out the environmental aspects of the Department's program, in coordination with the Bureau of Chronic Diseases, which will carry out the medical aspects of the program.

Primary responsibility for controlling air pollution is with the local agencies. The Department's program is primarily concerned with matters of state-wide interest. These activities will be concerned to a large extent with the effects of air pollution on health, determination of factors responsible for air pollution, surveillance of conditions throughout the State, monitoring of pollutants, coordination of activities of governmental agencies, and assistance to local agencies concerned with air pollution. The Department considers that one of its most important functions is to encourage the establishment of air monitoring networks and control districts in areas where air pollution is or may become a problem.

In order to determine the quality of air in the San Francisco Bay Area, this Department in 1954, in cooperation with local health departments, established air sampling stations in six Bay Area counties. As many as 22 stations are operated measuring oxidants in the air. Observations of odors, respiratory difficulty and irritation to the eyes, nose and throat are also reported. Pertinent meteorological data, largely obtained from the U. S. Weather Bureau, is also collected. A permanent automatic air monitoring station was established recently in Berkeley by the Department for continuous measurement and recording of air contaminants. Because the University of California is interested in crop damage during smog episodes, the station was located on a plot of land used by the University for agricultural research.

Extensive air measurements are being made for pollutants in Los Angeles by the Los Angeles County Air Pollution Control District. As a part of its program, the District maintains a monitoring network in which continuous samples of four major contaminants are taken. Because of the severe air pollution problem in Los Angeles, the District has expanded all of its activities and now has a comprehensive program of air measurement, research, control of emissions, and public information.

The Department and the U. S. Public Health Service are working with the Los Angeles County Air Pollution Control District in evaluating effectiveness of the air monitoring network established by that district. The emissions from refineries and power plants in that District are also being studied. Information coming out of these studies will be helpful in establishing other monitoring networks and in estimating the volume of emissions into the air in other areas of the State.

The San Diego County Board of Supervisors recently set up a County Air Pollution Control District. This District, with assistance from the State Department of Public Health, has initiated an air sampling program to study air quality, nature of emissions, meteorological conditions and effects of air pollution in the area.

New automatic recording instruments supplied by the Department were installed on a demonstration basis in San Diego to help county officials establish an air monitoring network. These were the first auto-

matic measurement instruments received by the Department for continuously measuring the amount of oxidants and nitrogen dioxide in the air.

The amount of radio-active materials in California's air was being measured daily by the Department during the four-month period of the Eniwetok atomic weapons tests. Two measurement stations were installed, one in Berkeley and the other in Los Angeles. The daily readings were made available to the public. Levels that have been measured are considerably below levels considered dangerous. These stations were two of 27 such stations in the Nation. The Department will continue the measurements on a permanent, less intensive basis.

No one knows exactly what "pure air" is. In an effort to establish a baseline of "pure air," the Department, with the assistance of the U. S. Public Health Service, has undertaken a project to obtain information on air quality in uninhabited areas of the State. The program consists of air sampling in undeveloped regions of California in order to establish background levels for measuring pollutants. This information will enable comparisons with data obtained in metropolitan areas, and will be of value in establishing the nature of the air mass in California. The stations are located at Crescent City, the Farallone Islands, Mt. Hamilton, Point Piedras Blancos, San Nicolas and San Clemente Islands.

Through the Public Health Service, the U. S. Weather Bureau has assigned a meteorologist to the Department. This meteorologist conducts studies of wind trajectories to determine where the air passing over the remote air sampling stations comes from.

The Department has undertaken studies to determine the health effects of air pollution in California. They include: analyses of mortality data for exposed populations to determine whether such pollution contributes to death; study of the sickness experience of exposed population through special surveys of the general population, of school and industrial groups, and of patients admitted to hospitals; investigation of the effects of air pollution on the frequency and intensity of attacks of hay fever, asthma and other respiratory illnesses, and studies of the effects of air pollution on normal activities of individuals.

As noted in the section on cancer, the American Cancer Society granted $31,946 to the Department for a study of air pollution as a possible factor in lung cancer.

There is no lack of local interest in the air pollution problem. California now has the following control districts: San Francisco Bay Area Air Pollution Control District; Los Angeles County Air Pollution Control District; Orange County Air Pollution District; Riverside County Air Pollution Control District; and the San Diego County Air Pollution Control District.

Present control programs are aimed at reducing the quantity of waste materials disposed into the air because no other method of improving air quality has yet been developed.

Before a community can intelligently plan an air pollution control program it must have an understanding of the quantity of air available, a knowledge of the kind and amount of pollutants and an understanding of the reactions that take place in the atmosphere.

We know that air pollution arises from a variety of man-made sources, but there is as yet no body of statewide data to indicate the extent of air pollution in California today. The basic elements of air pollution are beginning to be understood, but much more needs to be learned about the problem.

CALIFORNIA NEEDS MORE PUBLIC HEALTH WORKERS . . .

There is a real shortage of professional personnel in the rapidly growing field of public health. Young men and women who have the potentialities for making contributions to public health need to know more about this field of service. The work is richly rewarding to those who have a strong desire for an interesting field of service.

The Department made a survey in 1955 of the vacancies during that year in budgeted positions in California's health departments. The results showed the largest need in numbers is for public health nurses and registered sanitarians, but it also showed difficulties in filling the existing vacancies for physicians, health educators, statistical analysts, dentists, and bacteriologists.

	Total Positions	*Vacancies*
Public Health Nurses	1,135	168
Registered Sanitarians	705	84
Physicians	236	33
Bacteriologists	175	39
Sanitary Engineers	75	9
Analysts or Statisticians	63	15
Health Educators	54	15
Medical Social Workers	43	8
Dentists	21	5
Nutritionists	19	3

Shown here are the actual vacancies during the year ending September 30, 1955, in comparison with the total budgeted positions in the State in ten categories of professional staff.

The positions already budgeted are not an exact indication of the need, since more positions are continually being created to meet the pressure of population growth. The need in California health departments is greatest at the present time for physicians, public health nurses, sanitarians, sanitary engineers and bacteriologists. But there is also a growing demand for statistical analysts, health educators, industrial engineers, nutritionists, medical social workers, chemists, public health dentists, dental hygienists, food and drug inspectors, public health veterinarians and entomologists, and physical and occupational therapists.

Two descriptive pamphlets were developed by the Department in 1954 for use in recruitment of medical laboratory personnel. The National Health Council published excellent materials in 1955 for recruitment of various kinds of professional public health workers. Other professional organizations in medicine and public health have also produced recruitment materials and are working to reach students.

Students must be reached in high school or early in college work when they are making career decisions and can select studies which will provide them with the necessary educational background for the careers they choose. The Department has been working with the State Department of Education to familiarize school personnel, especially counselors, with the opportunities open to students for careers in public health, but the most effective efforts are those at the community level.

An unusual activity of this sort was the San Jose City Health Department student work-education program begun in the summer of 1955. Under this program two selected students worked for a month in the health department as apprentice staff members. The idea of the public health work-education program was the culmination of several months of planning by staff members of the health department, with people in the hospitals, the county medical society, San Jose State College, service clubs, voluntary health agencies and the San Jose Unified School District.

The long-term value of such a program should be very great since much interest was aroused in the schools and in the community.

The increasing gap between the number of personnel needed in the State to meet the demand for health services and the number available to do the work is a matter of concern to all those interested in the health of Californians.

MORE CALIFORNIANS NEED TO BE INTERESTED IN THEIR OWN HEALTH AND THAT OF THEIR COMMUNITIES . . .

Responsibility for the solution of California's public health problems lies with the people of California even more than it does with the public health workers. Public health departments can apply the discoveries of science to the prevention of disease, disability and untimely death only as fast as the people are ready to accept them and act upon them. That means more Californians have to know about their own health, that of their family and of their community, and be willing to take responsibility for improving them.

Because public health can move no faster than the public allows it, education has always been basic to all public health work. While the State Department of Public Health and the local health departments have responsibility for enforcement of a great many laws and regulations, compulsion has never been their most important method of protecting the health of the public.

Public health is the sum of the health of the people, but there are two kinds of health problems, and each needs a different approach to solution. The first kind are the problems the individual can solve for himself with the help of technically informed people in his community. This help is actually health education and may come from the family physician, health department personnel, voluntary health agencies, schools, organized study groups and many other sources. The problems in this category are those of the individual himself and his family—adequate nutrition, adequate medical and dental care, good health practices and habits, personal cleanliness and proper sanitation of his home and premises. These the individual has to do for himself.

The second kind of health problems are those the person cannot do for himself, ones that take organized community effort for their solution. No one person by himself can build a hospital, a water purification plant, a sewage disposal system or recruit physicians to serve his community. He cannot control an epidemic, inspect all the restaurants, groceries and meat markets, or do many of the other things a community needs to protect its health. All this takes group action backed by various official agencies. The combined resources and the organized thinking and study of all those in the community interested in health are necessary for the solution of this kind of problem. The state and federal governmental agencies can help by consultation and advice, by financial assistance to local health and welfare departments and in the construction of adequate hospital and health department facilities, by subsidies to counties for the care of tuberculosis patients and to mosquito abatement districts, but the ultimate responsibility rests with the interested people of the community.

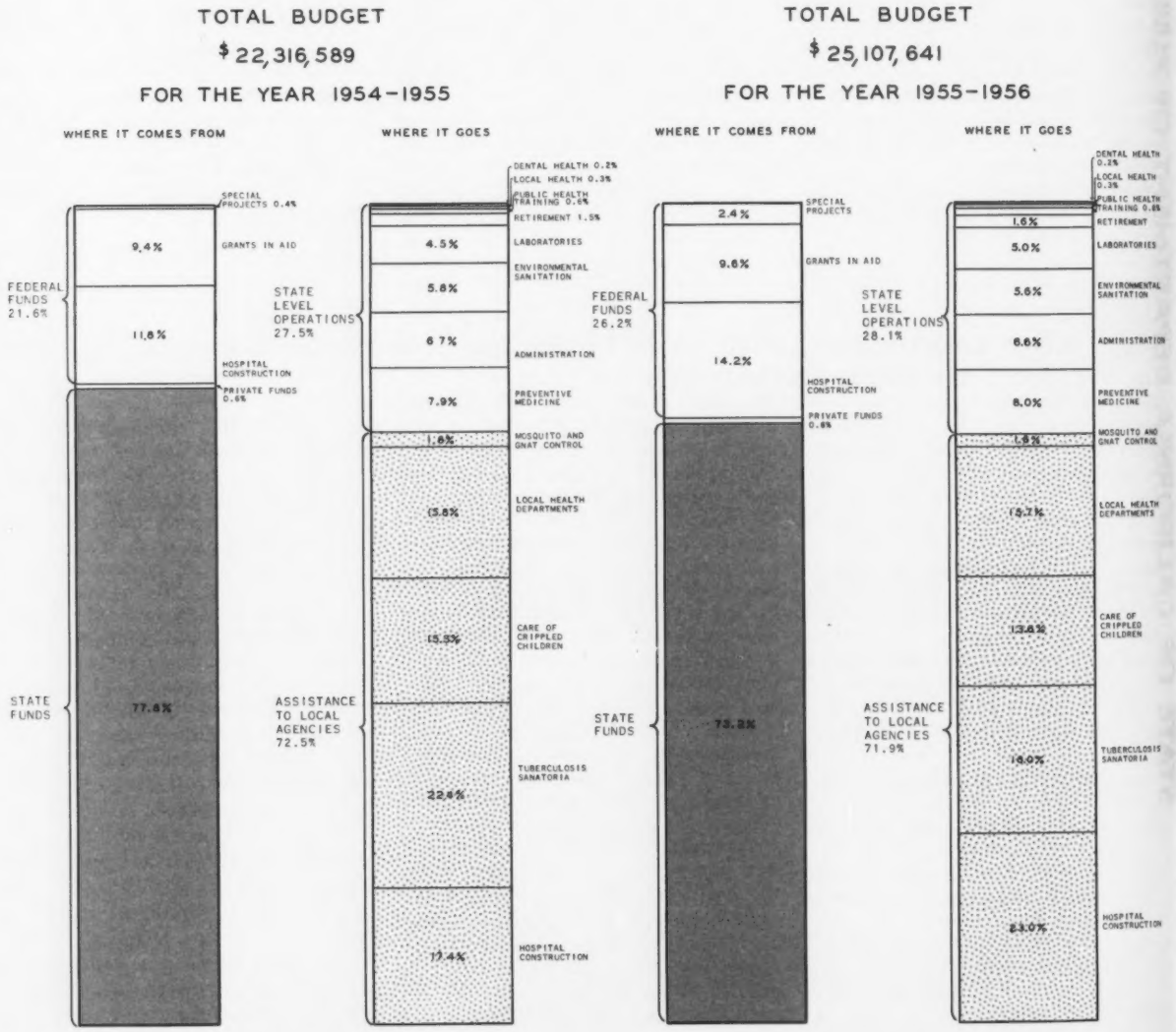
MONEY IS ALWAYS A PROBLEM IN PUBLIC HEALTH . . .

Public support, as expressed financially, has been growing steadily with increased understanding of how public health services actually save the taxpayers money as well as lives.

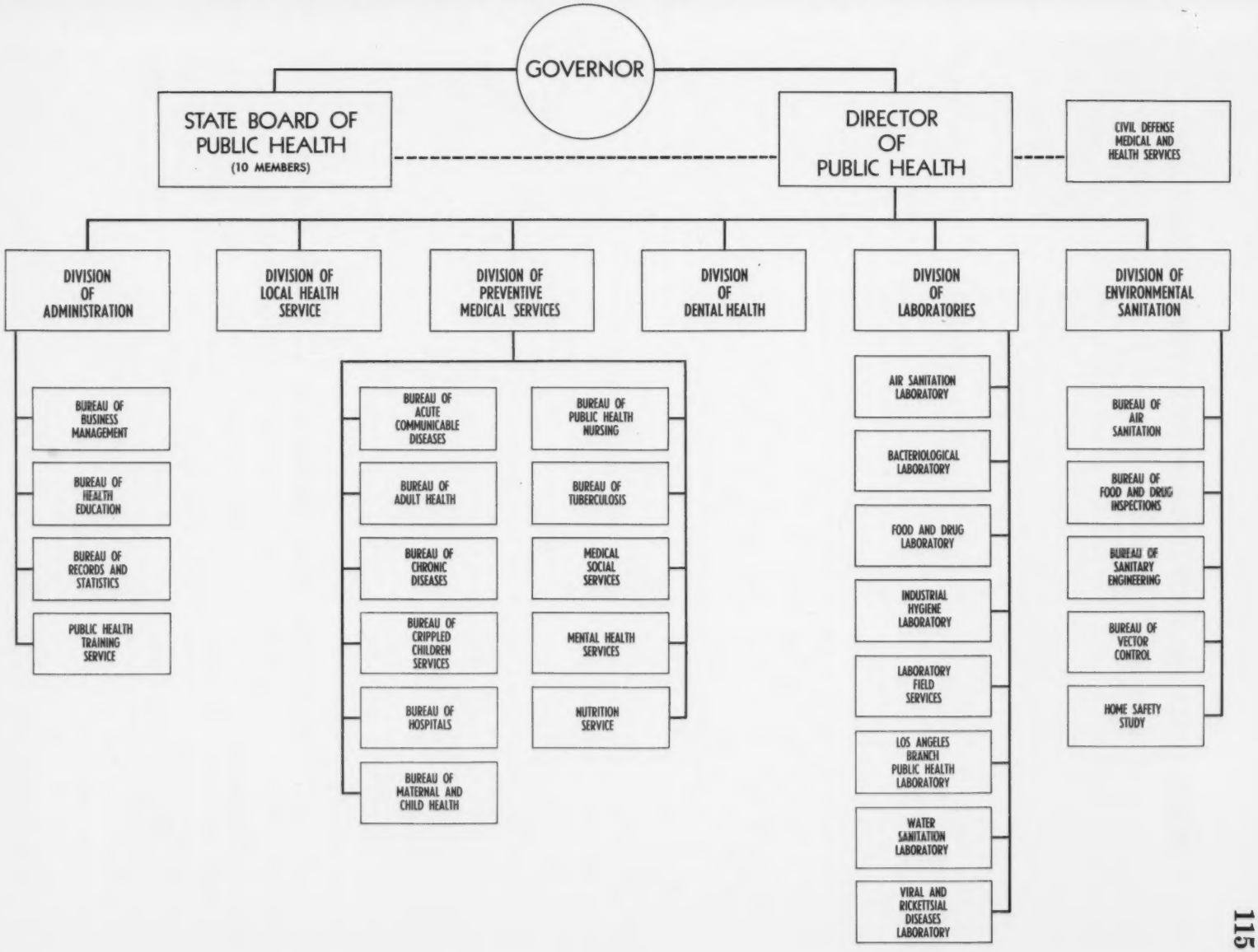
Money spent for public health is a sound investment, yet getting enough funds to carry out an adequate program is always a problem for public health agencies.

Below are the Department's budgets for the fiscal years 1954-55 and 1955-56. The bulk of the state funds received by the Department is earmarked for distribution directly to local health agencies.

The Department channels about 75 percent of the State public health funds to local agencies for a wide variety of public health purposes. In addition to subsidizing local health departments, the State makes grants for mosquito abatement, hospital construction, care of crippled children, and support of tuberculosis sanitoria. Funds received from the Federal Government are to a large degree passed on to local areas.



STATE OF CALIFORNIA DEPARTMENT OF PUBLIC HEALTH



THIS IS WHAT THE STATE DEPARTMENT OF PUBLIC HEALTH DOES . . .

The California State Department of Public Health, the second oldest in the nation, was established in April, 1870. Dr. Thomas M. Logan, who was appointed health officer and sole employee of the new department, worked out of his tiny, one-story brick medical office in Sacramento.

Today, from this unpretentious beginning, has grown a State Health Department which employs some 1,000 people—physicians, epidemiologists, laboratory technicians, researchers, health educators, nurses, statisticians, social workers, engineers and veterinarians, among others.

The Department moved into its new eight-story headquarters building in Berkeley in March, 1955. Here are located the administrative offices of the Department, and the main laboratories. In addition, there are well-staffed offices in Los Angeles, Sacramento, Fresno, San Diego, Terminal Island at San Pedro, San Bernardino, Santa Rosa, Redding and several other locations where there are one or two engineers, or other type of personnel, assigned to work with local communities and agencies.

The responsibilities of the Department are contained in concise sections of the Health and Safety Code of the State. From these stem a myriad of laws, rules and regulations which mold the activities, functions, responsibilities, programs and projects of this Department.

In brief, the Code holds the State Health Department responsible for: examination into the causes of communicable disease in man and domestic animals; investigation of the sources of morbidity and mortality and of the effects of localities, employments, conditions and circumstances on public health; licensing of hospitals coming under the Hospital Act of 1945; detection and prevention of adulteration of food and drugs; examination for and the prevention of pollution of sources of public water and ice supplies; and preparation and distribution at cost, of antitoxins, vaccines, and other approved biologic products for the control or prevention of communicable diseases. The Department may advise all local health authorities, and, when in its judgment the public health is menaced, it shall control and regulate their action.

The Department has as one of its principal functions the encouragement and stimulation of local health departments capable of meeting the public health needs of the areas which they serve. Direct public health service to the people of California is given mainly by local public health departments, the State Department giving only such direct service as cannot be provided locally. The chief way in which the Department works toward the accomplishment of adequate local health departments is through providing the following services:

1. Leadership in assisting communities without fulltime health departments to recognize their public health needs.
2. Financial aid in the establishment and strengthening of local health services, including the provision of staff and other resources.
3. Provision of educational opportunities for staffs of local health departments.
4. Establishment of standards of service and personnel, and
5. Coordination of the total public health program within the State and of local, state and federal programs.

The Department is guided in its activities by a 10-member State Board of Public Health, of which the Director acts as executive officer in addition to his duties as administrative head of the Department. The Board is composed of seven physicians, including the director; one dentist, and two lay members. Members are appointed by the Governor for four-year tems, so staggered that there are always some experienced members to give continuity to policy. The Board functions as a policy-making, regulatory, judicial and licensing body.

To carry out these many activities and administrative responsibilities, the Department has been organized into six divisions with supervision of 25 bureaus, services and laboratories. In addition there are several special study projects administratively attached to Departmental units. Heads of the units are given below as of June 30, 1956.

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

Malcolm H. Merrill, M.D., M.P.H., Director

DIVISION OF ADMINISTRATION

Robert G. Webster, M.P.H., Chief

This Division includes three bureaus—Business Management, Health Education, and Records and Statistics—and the Public Health Training Service.

Bureau of Business Management

G. Leonard Johnston, Chief

This Bureau is responsible for fiscal and personnel control, accounting and housekeeping functions. A responsibility of this Bureau is to channel the department's annual budget of some $25,000,000. Although this appears to be an enormous amount of money, about 75 percent of it goes to local communities, counties and cities as grants-in-aid. For example, $8,000,000 in 1955 was allocated for assistance in hospital and health center construction; about $5,000,000 in tuberculosis subsidy for the care of tubercular patients, and some $3,000,000 went to assist local health departments in their general public health programs.

Bureau of Health Education

Ann W. Haynes, M.P.H., Chief

The objective of this Bureau is to help people acquire the knowledge and attitudes that will enable them to take effective action to improve their personal, family and community health. The Bureau offers consulta-

tion and direct services in educational methods and materials to the Department, local health departments, other agencies, individuals, and organized groups. It conducts studies of the need for and evaluation of health education programs, provides training in educational techniques and operates a state-wide public information service and an audio-visual library.

Bureau of Records and Statistics

Paul W. Shipley, Chief

This Bureau is responsible for directing registration of births, deaths and marriages, and for providing services to the public with respect to these records. It provides direction, technical assistance and related processing services in the development of records and statistics which can be used as administrative tools by state and local health departments and by other agencies and individuals concerned with health problems.

Public Health Training Service

Glen E. Browning, Acting Chief

This service, since July, 1955, has been responsible for administration of the Department's training program, including both accredited and in-service training. Recruitment of public health personnel is also a function of the Service.

DIVISION OF DENTAL HEALTH

Lloyd F. Richards, D.D.S., M.P.H., Chief

This Division has responsibility for initiating and conducting programs of prevention, education, service and research designed to protect and improve the dental health of the people.

The Division provides consultative and advisory services and assistance to local health departments, schools and community groups in all phases of dental health programs of prevention, education and care; initiates and conducts studies designed to provide basic and authoritative information for programs for the prevention of dental diseases such as dental caries, peridontal disease, orthodontic defects, and oral cancer; and investigates the dental health problems of industrial, agricultural and remote rural areas.

These investigations provide the basic data for program planning. The Division maintains liaison with other state departments, state dental associations, and other health organizations, recommends all approved methods of dental disease prevention, including fluoridation of community water supplies.

DIVISION OF ENVIRONMENTAL SANITATION

Frank M. Stead, M.S., Chief

This Division includes four bureaus: Air Sanitation, Food and Drug Inspections, Sanitary Engineering, and Vector Control. The Division also is responsible for a Home Safety Study Project.

The Bureau of Air Sanitation

John A. Maga, M.S., Chief

This Bureau was established July 1, 1955. It is engaged in the engineering and environmental aspects of California's air pollution problem and its effects upon the health and environment of the people.

The Bureau is charged with maintaining official contacts with agencies concerned with air pollution; the establishment of air monitoring networks and sampling of pollutants in the atmosphere; obtaining data on environmental factors for correlation with biological studies and findings; conducting special studies to determine air quality; coordinating activities of air pollution control agencies in the State; assisting local agencies concerned with air pollution on technical problems and matters relating to organization and operation of local districts. The functions of this Bureau are coordinated with those of the Bureau of Chronic Disease, which is responsible for the medical aspects of the program.

Bureau of Food and Drug Inspections

Milton P. Duffy, Chief

This Bureau is charged under California law with the responsibility for the detection and prevention of adulteration, misbranding and false advertising of foods, drugs and devices produced within the State or shipped into the State.

The Bureau administers, under California laws, the licensing of persons engaged in specified types of food manufacturing, processing and storage. The Bureau cooperates with its federal counterpart in the control of products which cross state lines. Within the Bureau is the Cannery Inspection Section which administers and enforces California law governing the canning and packing of low-acid foods, including meat, fish and vegetables.

Bureau of Sanitary Engineering

Edward A. Reinke, Chief

This Bureau provides direct service throughout the State in implementation of laws relating to water supplies, sewage disposal, restaurant inspection and shellfish certification. It is the investigative arm of the Department in cases of "actual hazard to public health" resulting from disposal of sewage or industrial waste. This Bureau consults with local authorities on general sanitation problems and assists in emergency situations such as floods, earthquakes, fires or other catastrophes.

Bureau of Vector Control

Richard F. Peters, Chief

This Bureau applies environmental planning and operational activities to depress disease-vector populations to levels not detrimental to the health and comfort of man and domestic animals. This is done by proper management and utilization of land, water, and the organic by-products of agriculture, industry and the community.

The Bureau carries on fact-finding, research, consultation and control demonstration activities pertaining to various communicable disease vectors such as mosquitos, flies, fleas and ticks. Other activities include rural and urban rodent control, fly control and garbage and refuse management.

DIVISION OF LABORATORIES

Howard L. Bodily, Ph.D., Chief
Floyd W. Hartmann, Sc.D., Assistant Chief

All laboratories of the Department are centralized in the Division of Laboratories. This Division has eight

subdivisions which perform the following duties:

Air Sanitation Laboratory

Harold L. Helwig, Ph.D., Chief

This Laboratory provides technical support for the air sanitation program, including the analyses of air samples and studies to determine the nature and extent of air pollutants.

Bacteriology Laboratory

Alcor S. Browne, Ph.D., Chief

This Laboratory engages in diagnostic procedures involving bacteriologic and serologic examinations related to the control of communicable diseases, and provides consultative and reference service to local clinical and public health laboratories. It also manufactures and distributes certain biologic products.

Branch Laboratory in Los Angeles

Remo Navone, Chief

This Laboratory provides services in Southern California in three fields: food and drugs, sanitation and industrial hygiene.

Food and Drug Laboratory

Joseph V. Thom, M.P.H., Chief

This Laboratory engages in the analyses of food and drugs primarily to support the enforcement of laws relating to the purity of such products.

Industrial Hygiene Laboratory

Wesley Roberts, Chief

This Laboratory engages in chemical and physical analyses of materials of possible danger to industrial workers.

Laboratory Field Services

Max W. Chapman, M.D., Chief

This Laboratory subdivision is responsible for the enforcement of laws pertaining to licensing of manufacturers and distributors of biologic products, pertaining to regulations of clinical and public health laboratories, and clinical laboratory technologists and technicians, and pertaining to licensing of laboratories and research institutions for the use of laboratory animals.

Viral and Rickettsial Laboratory

Edwin H. Lennette, M.D., Ph.D., Chief

This Laboratory performs certain diagnostic procedures and investigative studies relating to diseases carried by viral and rickettsial agents.

Water Sanitation Laboratory

Arnold E. Greenberg, M.S., Chief

This Laboratory analyzes water and sewage for the purpose of supporting the program of the Bureau of Sanitary Engineering.

DIVISION OF LOCAL HEALTH SERVICE

John C. Dement, M.D., M.P.H., Chief

Donald G. Davy, M.D., C.P.H., Assistant Chief

John R. Philp, M.D., M.P.H., Assistant Chief

This Division has responsibility for integrating the relationships of this Department with local health departments and other agencies. Its basic operating duties are to give consultation to local agencies and administer the state financial aid program to local health departments, deciding their eligibility for these funds. The Division is the Department's principal liaison with the California Conference of Local Health Officers and correlates all relations of the Department with this official organization.

The Division is available for consultation to local governing bodies and has the responsibility for working with them and with local community groups interested in the development of local health departments.

DIVISION OF PREVENTIVE MEDICAL SERVICES

Robert Dyar, M.D., Dr. P.H., Chief

Frederic M. Kriete, M.D., Assistant Chief

This Division includes eight bureaus and three services.

Bureau of Adult Health

William H. Clark, M.D., M.P.H., Chief

This Bureau is active in strengthening the local resources available for the protection of the health of workers in industry and agriculture from both occupational and general health hazards. It offers direct services, such as medical, engineering and nursing consultation and studies, to individual industries. It is also concerned with the health problems arising from the development of new materials and processes introduced by industry and agriculture. Radioisotopes and the new toxic insecticides are examples of new and hazardous materials now commonly used throughout the State and it is therefore the responsibility of this Bureau to measure their effect on public health.

Bureau of Acute Communicable Diseases

Arthur C. Hollister, Jr., M.D., M.P.H., Chief

This Bureau works to strengthen local resources for the control of communicable diseases, and consults with local departments on specific problems in this field. It collects, evaluates, and analyzes information on the occurrence of disease; conducts epidemiologic investigation of disease outbreaks to determine their cause and mode of transmission; and develops and applies methods of disease control. The activities of the Bureau of Venereal Disease were transferred to this Bureau in 1955. These activities include assistance to local health departments in conducting case-finding, diagnostic and treatment programs and administration of the laws requiring premarital and prenatal examinations for syphilis.

Bureau of Chronic Diseases

Lester Breslow, M.D., M.P.H., Chief

This Bureau has as its principal work the study of cancer, heart disease and other chronic disease problems. In cooperation with voluntary health agencies and medical groups, recommendations are made for control programs. This Bureau coordinates with the Bureau of Air Sanitation the medical aspects of air pollution upon public health. Several special study projects are the responsibility of this Bureau, including lung cancer, alcoholic rehabilitation and a blindness prevention program.

Bureau of Crippled Children Services

Marcia Hays, M.D., Dr. P.H., Chief

This Bureau administers, in cooperation with the counties, the program which provides diagnostic and treatment services to physically handicapped children whose parents or legal guardians are wholly or partly unable to finance the services.

Bureau of Hospitals

Gordon R. Cumming, M.A., Chief

This Bureau is responsible for licensing and inspection of hospital facilities under regulations of the State Board of Public Health. This covers approval of plans for hospital construction. The Bureau also engages in continuing study of the need for hospital and related health facilities in the State, and administers the federal-state hospital construction funds in California. This Bureau assists communities in planning and development of additional health facilities.

Bureau of Maternal and Child Health

Leslie Corsa, Jr., M. D., M.P.H., Chief

This Bureau is responsible for the health protection of children and their families during the important periods of human reproduction and growth development. This is accomplished through study of the causes and methods of prevention of major health problems such as prematurity, congenital malformations, accidents and disordered behavior, and through consultation to health and welfare departments, hospitals, schools, medical societies and other groups.

Medical Social Service

Esther C. Spencer, M.S.S., Chief

Social Service assists local health departments and other health and social agencies in building community resources to prevent social and family breakdown; assistance is also provided in strengthening professional skills needed to help individuals use health and social services. It works with other public health personnel in the development of research and program planning aimed at identifying and dealing with social factors in disease causation and control.

Mental Health Service

Arnold D. Schwartz, M.D., M.P.H., Chief

The Service assists a variety of community agencies, including local health departments, to recognize opportunities in their various activities for the application of methods effective in the prevention of mental and emotional disturbance. It places special emphasis on work in maternal and child health and in school health programs.

Nutrition Service

Helen E. Walsh, M.A., Chief

This Service offers consultation to the Department, to local health agencies, hospitals and other institutions in the application of sound principles of nutrition to all health programs, with special effort directed toward the control of obesity, the dietary management of chronic disease, and nutrition in special age groups.

Bureau of Public Health Nursing

Rena Haig, M.A., Chief

The Bureau of Public Health Nursing works toward its objective of improving public health nursing services in California through: coordinating nursing activities in the California State Department of Public Health, recruiting nurses for preparation and employment in public health, developing educational opportunities for nurses, and providing consultation to local agencies which employ public health nurses. The Bureau also carries out the regulations of the State Board of Public Health in regard to certification of public health nurses.

Bureau of Tuberculosis

Edward Kupka, M.D., M.P.H., Chief

This Bureau has two main types of activity. First, with the objective of eradicating tuberculosis in California by means of case-finding programs and diagnostic services, it assists local health authorities and state institutions to find new cases and place them under treatment. Second, it establishes standards for all county institutions concerned with tuberculosis care, and administers state aid funds for such care.

DIVISION OF MEDICAL AND HEALTH SERVICES (Office of Civil Defense)

Frank L. Cole, M.D., Chief
W. Dalton Davis, M.D., Assistant Chief

This Division is administratively one of the 12 divisions of the State Office of Civil Defense, but for planning purposes it is part of the Department. This unique arrangement provides an efficient and workable method of preparing for disaster.

This Division is responsible for leadership and guidance in the organization and mobilization of medical and health resources in time of disaster, including development and advancement of plans for organized medical and health services, procurement and storage of emergency medical supplies and equipment, and establishment and continuance of training and information programs.

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SUBJECT INDEX

	Page
Accidents	88
Aging, Problems of	81
Air Pollution	111
Alcoholism	101
Births	78
Blindness	81
Botulism	105
Brucellosis	99
Budget	114
Cancer	87
Cerebral Palsy	92
Chickenpox	90
Child Health	79
Chronic Disease	82
Cirrhosis of the Liver	101
Common Cold	95
Contract Counties	108
Crippled Children	91
Deaths	78, 85
Dental Decay	92
Department Functions	116
Departmental Organization Chart	115
Diabetes	83
Diphtheria	90
Divorces	79
Dysentery, Bacillary	103
Encephalitis	97
Field Sanitation	107
Floods	104
Fluoridation	92
Fly Control	104
Food Poisoning, Bacterial	105
Food Poisoning, Chemical	105
Food Sanitation	105
Gastroenteritis	103
Glaucoma	81
Gonorrhea	101
Health Centers	110
Health Survey, California	84
Heart Disease	86
Hepatitis, Infectious	103
Hospitals	110
Housing	106
Industrial Hazards	93
Infant Deaths	79
Influenza	95
Insecticides	98
Local Health Departments	108
Marriages	78
Maternal Deaths	79
Measles	90
Measles, German	90
Mental Illness	100
Migratory Labor	108
Mosquito Control	98, 104
Mumps	90
Mussel Poisoning	105
Nursing Homes	110
Obesity	83
Occupational Diseases	93
Plague	99
Pneumonia	95
Poliomyelitis	90
Population	79
Prematurity	80
Psittacosis	98
Public Health Positions	112
Q Fever	99
Quackery	88
Rabies	96
Radiation Hazards	93
Rehabilitation Centers	110
Respiratory Diseases	95
Retrolental Fibroplasia	81
Rheumatic Fever	92
Rural Health Problems	106
Salmonellosis	105
Sanitation, Recreational Areas	106
Sewage and Waste Disposal	102
State Board, Members	76
Syphilis	101
Trichinosis	99
Tuberculosis	94
Typhoid	102
Whooping Cough	90